



A
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and Hundreds of Other
Helpful and Profitable
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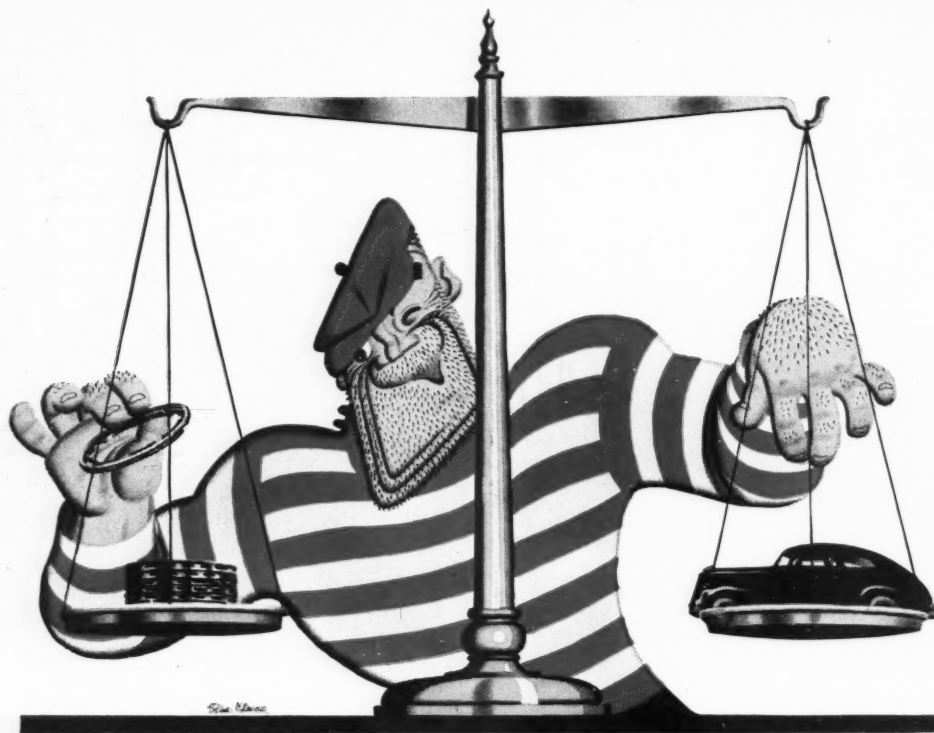
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MOTOR AGE

FOR AUTOMOTIVE SERVICEMEN





Save your ton of steel

● You own a ton of precious steel. Are you protecting it to the utmost?

You, and your fellow car owners, are the guardians of millions of tons of vital, irreplaceable steel—in the cars you drive.

With care and proper handling, this steel can be made to last, and to serve the nation efficiently and economically—for the duration.

Neglect and carelessness are no longer mere personal matters; they have become a common concern. It is a duty now to stop oil-pumping and conserve oil; and to save the cylinders too.

Your service man will work with you, honestly and intelligently, to prevent waste and wear. Take him into your confidence, and save your ton of steel.

HASTINGS MANUFACTURING COMPANY • HASTINGS, MICHIGAN
Hastings Mfg. of Canada, Ltd., Toronto

HASTINGS
STEEL-VENT PISTON RINGS

TOUGH ON OIL-PUMPING • GENTLE ON CYLINDER WALLS

This two-color full-page advertisement appears in The Saturday Evening Post, September 12th issue

WE'RE ALL OUT TO WIN

★ You men on the service firing line have a big job to do, too. You must *keep 'em rolling*. Millions of tons of precious, irreplaceable steel—millions of miles of indispensable transportation—depend on you.

The Hastings advertisement reproduced above will focus attention on you and the vital service you are rendering. Tie-in with it—and see *how many tons of steel you can save*.

FREE TIE-UP MATERIAL

You get enlargement of Post advertisement, streamers, poster, mailing cards—everything you need to tie-in your shop with the "Save a Ton of Steel" program. Ask your jobber salesman for the details.



HASTINGS MANUFACTURING COMPANY, HASTINGS, MICHIGAN
HASTINGS MFG. OF CANADA, LTD., TORONTO
PISTON RINGS • PISTON EXPANDERS • VALV-RINGS

**Join the
U.S.**

**TRUCK
CONSERVATION
CORPS**



KEEP ALL ESSENTIAL VEHICLES MOVING WITH *GREY-ROCK'S 3-POINT PLAN

Trucks, tractors, local buses, and essential passenger-cars must roll. With Grey-Rock's 3-Point Plan, you give Victory's vehicles more road-time, less lay-up time for brake and clutch jobs. This plan is not a theory. It works! Even unskilled mechanics can follow its A-B-C procedure . . . get more done in less time . . . and get it done right. Grey-Rock's 3-Point Plan makes customers, not just sales. Ask your jobber. UNITED STATES ASBESTOS DIVISION of Raybestos-Manhattan, Inc., MANHEIM, PA.

NOW... MORE THAN EVER...
DEPEND ON

Grey-Rock

BALANCED BRAKES

BRAKE BLOCKS • CLUTCH FACINGS • FAN BELTS • HOSE



DO YOUR BIT FOR VICTORY WITH GREY-ROCK'S 3-POINT PLAN



NATIONAL SAFETY COUNCIL STANDARDS
—quickest, surest, safest check on brake
inspector, adjustment and roller jobs.



GREY-ROCK ENGINEERING METHODS—the
expert way to do good brake jobs faster and
better. Every brake is diagrammed in the big
Grey-Rock Service Guide.



GREY-ROCK BALANCED BRAKES and
Truck and Bus Blocks are the correct nation-
ally-advertised balance worthy of good service.
Famous Vuc-luk Clutch Facings are best for
every vehicle.



We're with YOU

We're telling *your* customers—with every penny of our national advertising money—that Registered AC Cleaning Stations can help save gas, conserve plugs, and keep engines efficient through plug cleaning. Month after month, our advertising continues to give you this full, direct support.

Every ad also says, "Look for the official Registered AC Cleaning Station Sign."

Help conserve, through plug cleaning—and help win the war!

Buy War Bonds and Stamps



AC SPARK PLUG DIVISION • General Motors Corporation

MOTOR AGE

With Which is Combined AUTOMOBILE TRADE JOURNAL

FOR AUTOMOTIVE SERVICEMEN

Vol. LXI, No. 10

September, 1942

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 W. K. TOBOLDT, Editor J. EDWARD FORD, Managing Editor
 JOS. GESCHELIN, Detroit Tech. Editor HOWARD KOHLBRENNER, Art Editor
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SEPTEMBER • 1942



SHOP TALK

by

Bill Toboalt

FISH STORIES

Fishing stories are always interesting, particularly those about the big one which got away. But when you are fishing for customers, be sure that you are using the right kind of bait on the right size of hook. And the best way to catch more customers is to treat those you have—right.

BETTER MILEAGE

Trying to make one gallon do the work of two is becoming an everyday job to Eastern servicemen and many authorities agree that it will be a nation-wide problem right after the elections in November and the immediate need of currying favor with the voters is not so pressing. Taking the center of the stage at the moment is the method whereby only one half the cylinders are in operation. As pointed out in an article in this issue, better than 33 per cent improvement in gasoline mileage can be expected. However, too much emphasis cannot be placed on careful and complete tune-up. You have to have good com-

pression, accurate carburetion, a hot spark, reduced friction and no back pressure if you want to get the most out of each gallon of gasoline. And don't forget you'll get twice the mileage at 20 m.p.h. that you do at 70.

TRUCK MAINTENANCE

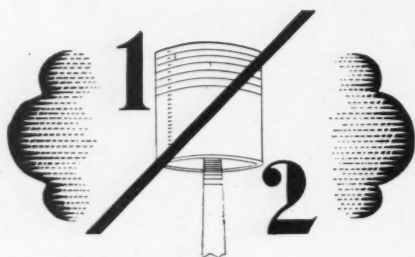
Reports from Washington state that thousands of truck owners have joined the U. S. Truck Conservation Corp. by signing the pledge to practice preventive maintenance as outlined by the Office of Defense Transportation and described on page 23 of the July issue of MOTOR AGE. More are signing up daily. This is official proof that the country's five million truck owners

are becoming increasingly aware of the importance of preventive service. This means that repair shops—both independent and car dealer operated—will find even more truck repair work to do than in the past.

PRODUCER GAS

There seems to be an increased interest in producer-gas units to take the place of gasoline. Following the article in the July issue of MOTOR AGE I have received many requests for additional information. However, at the present time, I have not been able to locate any company in the United States which manufactures units of that type.





By Bill Toboldt

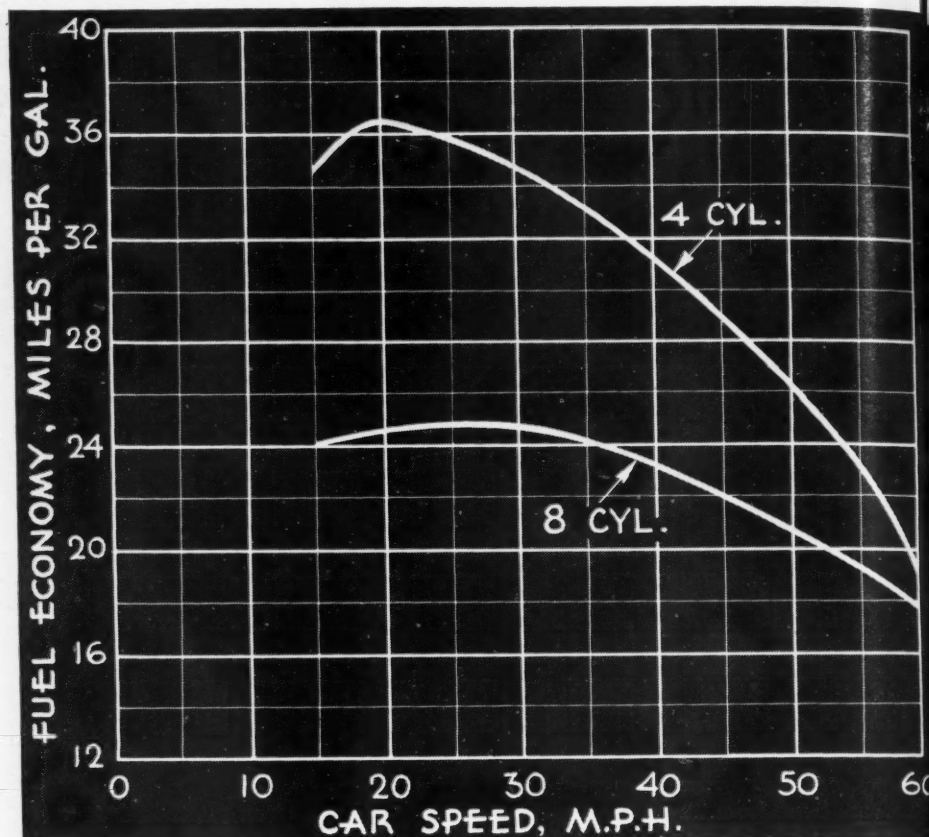
WITH 1,500,000 car owners on the Eastern Seaboard worrying and wondering how to make 1 gal. of gasoline do the work of two, a plan has been announced which, while not attaining that impossible ideal, will give a very acceptable solution.

The plan was developed by the Sun Oil Co. and was presented by them as a contribution toward the conservation of the nation's supply of petroleum.

Sun engineers tested many different makes of cars, driving them thousands of miles in order to be sure that there were no hidden flaws in this method of reducing gasoline consumption. Cars in all price classes powered with six, straight eight and V-8 engines were tested and worth-while improvements in economy were noted in each case. The only cars on which the method will not function satisfactorily are those using engine vacuum to shift gears.

The improved economy is attained by using only half the normal number of cylinders. An eight operates as a four, and a six as a three-cylinder engine. In order to maintain balance of reciprocating parts and not introduce annoying vibration, and also to avoid difficulties from the open oil ports in the crankshaft, the pistons and rod assemblies of the inoperative cylinders are not removed.

Valve-tappet screws are removed from L-head engines and the tappets blocked in the upward position. On overhead-valve engines, valve push rods and cylindrical tappets are removed. This is done to prevent any suction acting on the carburetor and also to prevent any of the hot exhaust gases from the operating cylinders reaching



Mileage curves for an eight-cylinder car, showing the greater mileage with four cylinders out of operation. At right, Joseph N. Pew, Jr., vice president of the Sun Oil Co., watches Ludlow Clayton, right, chief automotive research engineer for Sun, and J. G. Moxey, Jr.,

HALVING CYLINDERS TO SAVE GAS

Mileage jumps surprisingly when half the cylinders of test cars are blanked out and carburetors are changed to the new demands

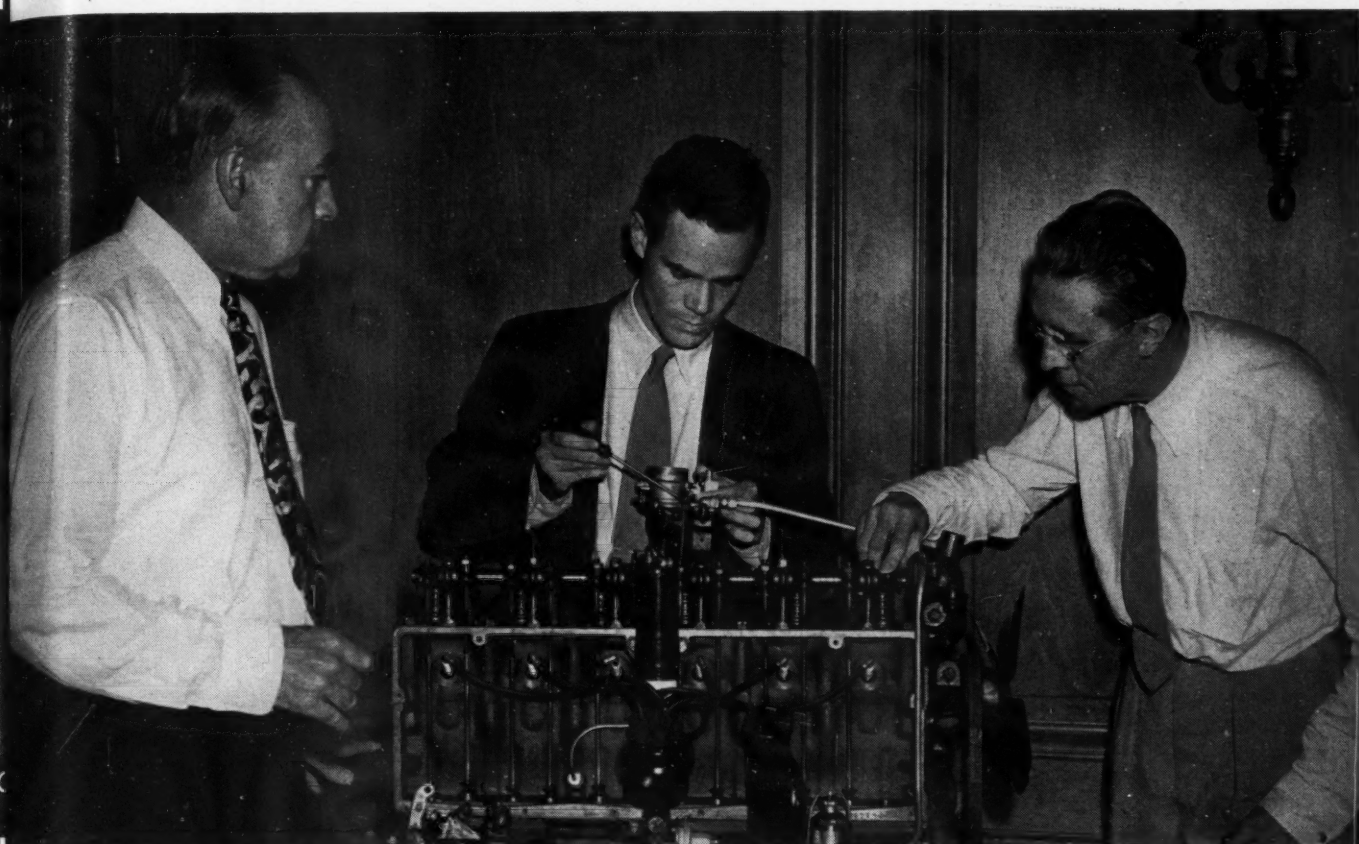
the exhaustive-valve seats of the inoperative cylinders.

So as to eliminate any possibility of fuel being drawn into the inoperative cylinders, carburetor jets and accelerating pumps, of two-throat carburetors, supplying such cylinders are plugged. It is understood that the use of blind gaskets at intake ports was tried on several engines, but because of construction details of manifold

and block, the other method was adopted. Spark plugs are left in the engine but are shorted at the gap.

When driving cars so converted, the writer noted little difference at cruising speeds; it is only when the accelerator is stepped on that the lack of additional cylinders is noticed. This is, of course, particularly true at speeds below 20 m.p.h.

On a long straightaway, a speed



assistant research engineer demonstrate the changes necessary to operate a popular six-cylinder engine on only half its cylinders.

FUEL ECONOMY

Fuel economy was obtained both before and after alterations on each car. All five cars were run under two varying conditions —

- (1) On the level road, at constant speeds varying from 15 to 60 m.p.h. Fuel economies on this test are shown below in Table I.
- (2) Under average traffic driving conditions. Fuel economies on this test are shown in Table II.

TABLE I
ROAD LOAD FUEL ECONOMY

Car speed, m.p.h.		15	20	30	40	50	60
Car A	Fuel Economy, m.p.g. (8 cyl.)	24.3	24.1	24.7	23.1	20.8	17.7
	Fuel Economy, m.p.g. (4 cyl.)	34.7	36.4	34.6	31.1	25.9	19.0
	Improvement, %	42.8	51.1	40.0	34.6	24.5	7.3
Car B	Fuel Economy, m.p.g. (6 cyl.)	25.6	24.6	24.0	22.6	19.8	17.2
	Fuel Economy, m.p.g. (3 cyl.)	33.1	34.1	29.5	25.8	21.5	....
	Improvement, %	28.1	38.6	22.9	14.2	8.6	....
Car C	Fuel Economy, m.p.g. (6 cyl.)	24.8	25.5	25.9	23.1	20.7	18.3
	Fuel Economy, m.p.g. (3 cyl.)	26.8	33.5	31.0	27.5	22.5	19.0
	Improvement, %	8.1	31.4	16.5	19.1	8.7	3.8
Car D	Fuel Economy, m.p.g. (8 cyl.)	....	22.0	20.8	18.8	16.2	14.8
	Fuel Economy, m.p.g. (4 cyl.)	....	25.0	24.0	22.0	20.0	16.5
	Improvement, %	....	13.6	15.4	17.0	23.4	11.5
Car E	Fuel Economy, m.p.g. (8 cyl.)	....	....	24.2	22.9	21.0	18.0
	Fuel Economy, m.p.g. (4 cyl.)	22.5	29.0	29.0	25.0	21.0	....
	Improvement, %	....	....	19.8	9.2	0.0	....

TABLE II
AVERAGE TRAFFIC DRIVING CONDITIONS

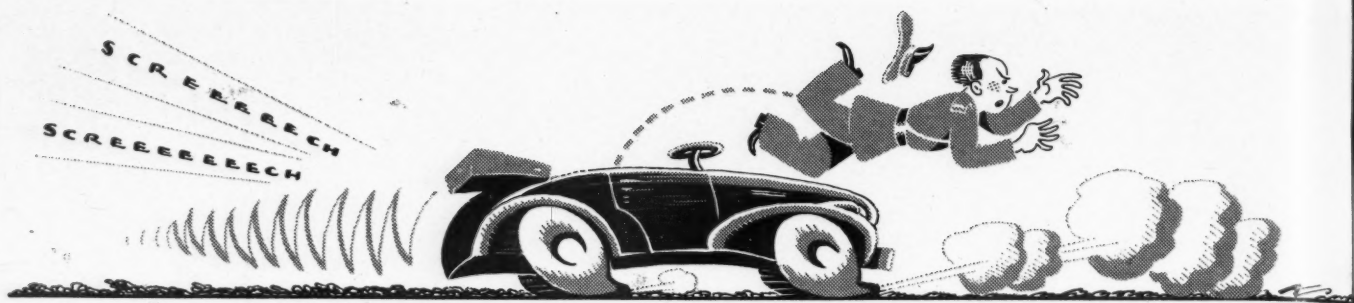
	Mileage	Time hrs.	Average Speed m.p.h.	Fuel Consumption Gal.	Fuel Economy m.p.g.
Car A { 8 Cylinder 4 Cylinder	196	7:55	24.8	10.30	19.00
	497	20:53	23.8	20.50	24.25
Car B { 6 Cylinder 3 Cylinder	201	7:33	26.6	10.20	19.70
	170	7:25	22.9	7.25	23.45
Car C { 6 Cylinder 3 Cylinder	150	6:45	22.3	7.75	19.35
	182	7:00	25.9	7.75	23.42
Car D { 8 Cylinder 4 Cylinder	391	14:05	27.8	23.40	16.70
	132	4:25	29.8	7.50	17.60
Car E { 8 Cylinder 4 Cylinder	177	7:35	23.4	11.20	15.80
	194	7:00	27.7	10.25	18.93

of 60 m.p.h. was obtained with a popular-priced six with only three cylinders in use. While acceleration and hill-climbing ability are greatly reduced, there is sufficient power to negotiate the average hill, though shifting of gears would undoubtedly be necessary in the mountainous country.

When the writer drove the test cars, vibration was much less than he had expected to experience, and is not noticeable at all at speeds over about 25 m.p.h.

The work to be done on the engine and particularly the carburetor precludes the possibility of the work being done by the average car owner. However, it can easily be performed in the average shop in a few hours' time.

Automobile manufacturers have been invited to cooperate in making the gas-saving plan available to the average motorist by informing their car dealers how the necessary adjustments can be made in various makes and models of cars.



“WELL,” asked Pop O’Neill when Chuck Masters stepped out of the 1937 Ford he had just driven around the block, “what do you think of ‘em?” The Ford, with out-of-state plates, had been brought in by an Army shavetail on his way to an Eastern camp. The brakes had been adjusted before he left home and had been grabbing and jerking ever since.

“Whew,” said Chuck. “That’s the punkest set of anchors I ever seen.”

“What’s wrong?”

Since Pop had talked with the young officer when the car was driven in, Chuck knew he was not asking for information, but probably had diagnosed the trouble almost immediately. What he wanted to know was how much Chuck was learning about brakes. So Chuck frowned as knowingly as he could and started to explain.

“The way it feels to me,” he said, “the left rear shoes are grabbin’. The others ain’t too good, but that one set is the worst. And it’s got a pretty hard pedal.”

“Right so far,” said Pop, “but the lieutenant knew that much. What I want to know is how we fix it.”

“Well,” answered Chuck, trying hard to remember the list of brake symptoms he had memorized in vocational school, “grabbin’ could be caused by weak return springs. Or the shoes could be out of adjustment. Or the wheel bearings could be loose or busted.”

“You’re still right. But what’s wrong with this particular brake?”

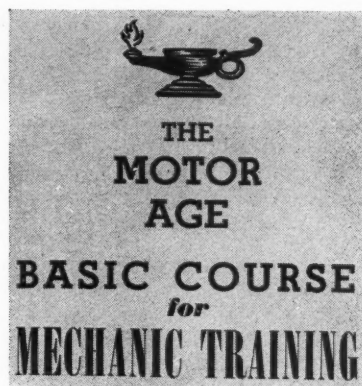
Chuck thought hard for a moment or two.

“I guess weak springs would be the best guess.”

“A pretty good one,” admitted Pop, “but this is a ‘37 Ford and it’s got self-energizin’ brakes. Does that mean anything to you?”

“Sure. It means one of the

A BRAKE TO WATCH



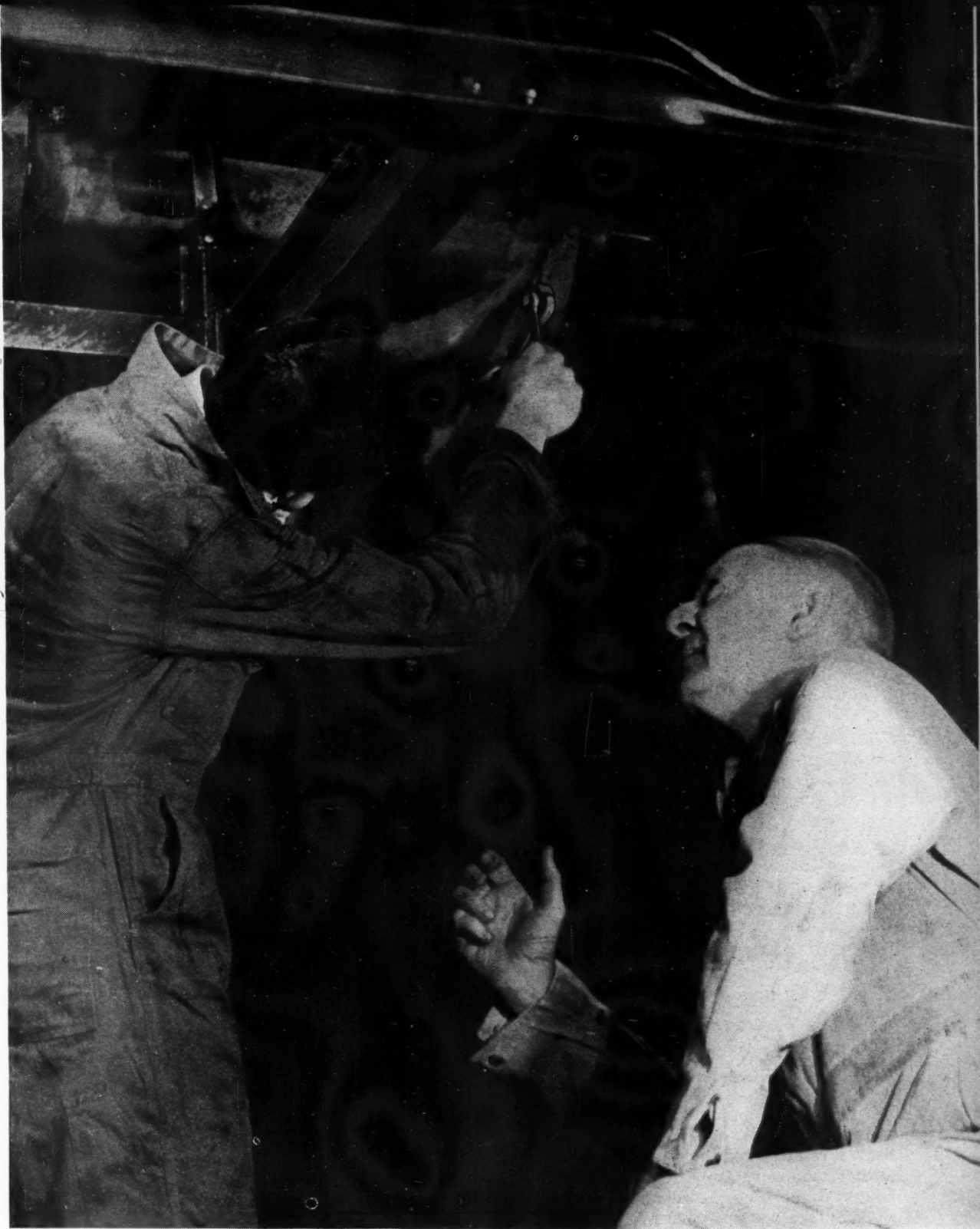
Adjustment of these self-energizing brakes looks easy, but Chuck learns that indifferent work spells trouble

BY J. EDWARD FORD

shoes has got weaker springs than the other. The shoe with weak springs contacts the drum first and tries to turn with it. That motion applies the other shoe, so you get a whole lot more pressure on the drum than you get on the brake pedal.”

“That’s a fair explanation,”

said Pop, “but you forgot one thing. The shoes have to be centralized. Unless they are, you get uneven pressure and grabbin’. A good many mechanics forget that the ‘37 and ‘38 Ford had an eccentric anchor. Ford didn’t adopt that type of brake till ‘37 and then in ‘39 he went over to hydraulic. So



"That ought to do it," said Pop. "Go over the other wheels the same way and let me know how you make out."

a careless man, when he sees the brakes are mechanical, just takes up on the adjustin' screw till the wheel drags and then backs it off a little. Unless I'm gettin' old, that's what happened here. Put a jack under it."

Chuck slid a jack under the rear end. Pop stooped.

"That," he said, pointing to the anchor-pin lock nut, "is what you've got to play with to centralize the shoes. Hand me a wrench." He loosened the lock nut. "Now," he continued, taking a screw driver, "I'll run in the adjustin' screw to expand the shoes into the drum. Then I turn the anchor pin

one way till I feel the wheel drag. Then I turn it the other way till I feel the wheel drag again. Finally I turn it till it's just in between and tighten the lock nut. But," he said with a glance at the wrench on the floor, "I'll need a bigger wrench—one with a 20-inch

(Continued on Page 70)

BY GEORGE B. WATSON

A MACHINE shop for rebuilding motors and motor units, such as carburetors, generators, fuel pumps, starters and distributors is proving a money maker for Tucker Motor Co., Ford dealers, Tuscaloosa, Ala. The new department helped the concern to show a 100 per cent increase in shop work during a recent 12-month period.

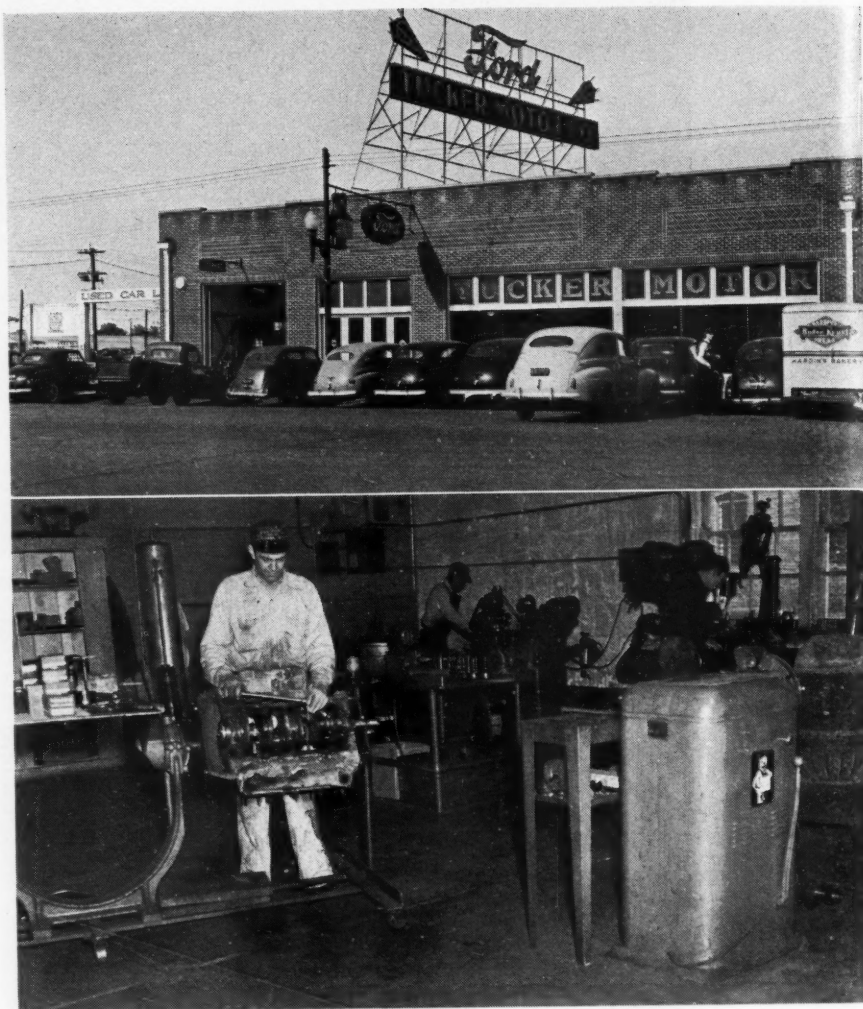
"In the new order of things owners are having to drive their cars over a longer period, thus requiring more in the way of major overhauls," said W. W. DaLee, service manager. "Yet most of them are very busy during these times and can spare their cars or trucks for only the shortest period of time.

"Our machine shop speeds things up. This is not only important from the customer's standpoint but also from our own production standpoint. We can furnish the customer with a rebuilt motor or motor unit on an exchange basis and do it with a minimum of lost time. We are doing this not only for our own owners, but also for other dealers and garages which are not so equipped."

DaLee said that the machine shop was proving quite helpful now that there are delays in getting replacement parts. Nor is there any delay while a motor or motor unit is being sent to an outside machine shop for rebuilding. All operations are attended to in the one shop.

Usually, when a car comes in for a rebuilding job, other sales result as well. For instance, tickets for five recent engine-rebuild jobs showed that the owners had the brakes relined, bought seat covers, authorized some other work or bought some other merchandise.

"We urge our customers to have everything they need done at the one time for several reasons," explained DaLee. "They can lump the cost all into one sum payable over a period of months. We have a budget plan whereby bills of from \$50 to \$75 may be paid over a period of five months, those from \$75 to \$100 over a period of seven months and those over \$100 over a period of ten months. If the bills extend over a period of only two or three months we usually carry them ourselves, but if over a longer term turn them over to the finance company."



A corner of the machine shop. Top, exterior of the dealership, located at Tuscaloosa, Ala.

REBUILDING SHOP KEEPS DEALER BUSY

**Southern dealer doubles his shop
volume by offering owners faster
service and easy monthly payment**

Equipment in the Tucker machine shop includes a lathe, a piston turner, a valve machine and rescater, a crankshaft machine for use with the motor either in or out of the car, a brake-drum lathe, a 60-ton press, two boring bars, and a complete set of equipment for testing and reconditioning carburetors, fuel pumps, distributors and other motor units.

The Tucker shop is so well-equipped that it recently made application to the War Department to do work on Army trucks and other machines. In this application, it listed its various machines, make, size, type age, condition and average man hours now in operation and also the number of man hours available for operation. This

(Continued on Page 52)



WHAT'S WRONG HERE?

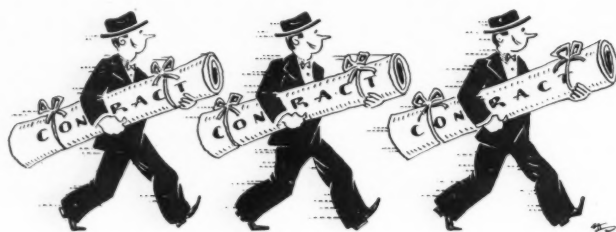
If you're interested in supplying a case for a First Aid student, there's nothing wrong with the method illustrated. But, if you're trying to turn a screw that's hard to start, it's a serious blunder. The blade of the screw driver will usually slip out of the slot and slice into the palm of the

hand, inflicting a painful and often dangerous wound.

Play safe. No matter how small or handy the object with which you are working, support it on a bench so that your hand can be kept out of the way of the slipping blade. Running risks never saves time.

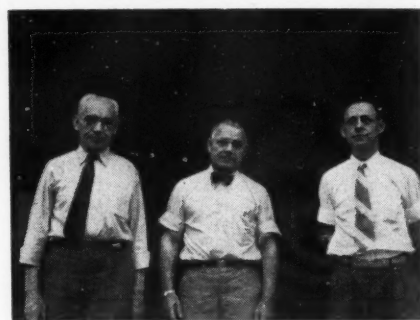


HOW WE GOT WAR CONTRACTS



Offering his own bustling shop as proof that his method works, this dealer advises others to get out and sell their ability to produce

By A. W. GREENE



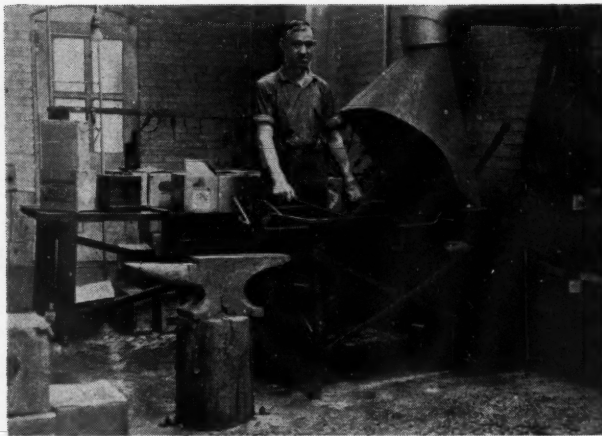
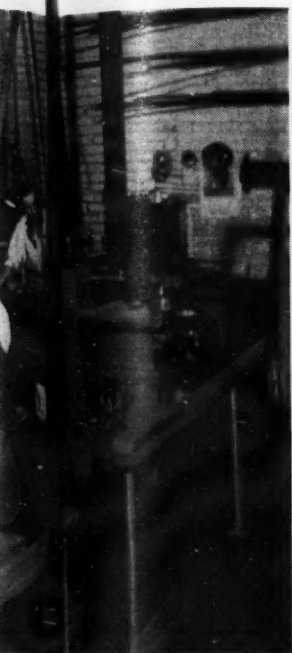
Bill Jones, Ford dealer, left, with "Eck" Cox, sales manager, and right, Johnnie Archer, purchasing agent. Above, a view of the shop, converted to war production.

BILL JONES has been doing an aggressive job of selling for 28 years. Through World War I, prosperous times and depressions, he established sales records as a Ford dealer in Mount Holly, N. J., a small town about 20 miles northeast of Philadelphia, Pa. It is understandable that such a man should give intensive sales methods the basic credit for his present outstanding success in obtaining war contracts.

"How did you get started in war production work, Bill?" we asked.

"A year ago, we took stock and decided to trim down to fighting shape. First, we unloaded all used cars.

"We always had a few pieces of machine-shop equipment around



Some of the finished work turned out by the shop. These products were machined to close tolerances by mechanics, helpers, grease men, and gas-pump attendants, all of whom were trained in war production by the dealer within a few months. The forge, above, used only occasionally in peace time, is doing yeoman's service on war work.

for special emergency replacement work. This consisted of an old lathe, a hand miller, a drill press and a blacksmith's forge. We could dispose of that, too. But Eckard L. Cox, our sales manager, got to thinking that maybe we could make more money if we sold the services of those machines.

"On the other hand, I knew that the amount of equipment we had was only a drop in the bucket. I knew that, in producing war material, we would be tackling another man's specialty, one that took years of highly specialized training with a big investment in precision and production equipment.

"At the time the freezing of the automobile production seemed im-

minent, I was in the hospital. Cox came to the hospital and told me he was determined to get some war contracts. As a matter of fact, he admitted that a local subcontractor, under heavy production pressure, had given us some work."

"Have you found it difficult to get war contracts?"

"Of course it's difficult to get war contracts or even small subcontract jobs," said Bill. "It should be, for the good of this nation and efficiency of production. The productive facilities of the small plants have to be checked carefully by experts. That takes a tremendous amount of time."

"Assuming that the equipment can be procured, or is now avail-

able, how should a dealer go about getting actual orders?"

"That's a straight selling job; nothing less. Know your tools and equipment; know what can be done with them. Take advantage of every contact you ever made to determine where war goods are being manufactured. Get everybody in your organization to ask his friends, neighbors and relatives. Go to these plants. Make not only one contact, make several. See the plant superintendent, the production manager, the purchasing agent—you can't see too many people.

"Prepare a list of all your tools and equipment. List, also, any other advantages you can offer, such as railroad siding, if any, area of open space available, etc. Prepare many copies and leave one every place you call. Be sure, of course, to file the list at your local WPB office.

"Make many calls; make many call-backs. To get by the assistants, secretaries and receptionists, take some work along and say to these buffers, 'I want Mr. So-and-so's OK on this drilling job.' To let the production man handle your work is like letting your automobile prospect drive the car. So, at every opportunity, make it a point to show samples of work: Welding, brazing, grinding, drilling, turning, milling, or whatever you are set up to do."

We commented that we had heard some talk of favoritism and politics in handing out sub-contracts.

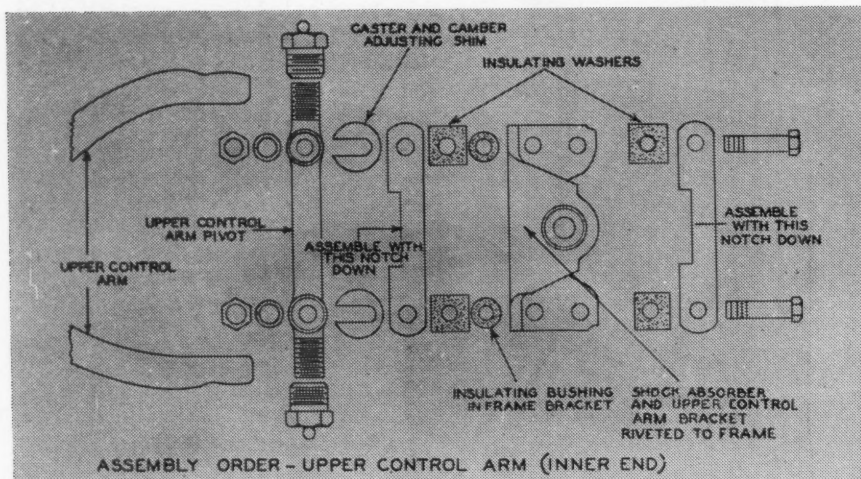
"Nonsense! We're out in the sticks but we're getting our share, competing at long range with Philadelphia, Camden and Trenton—all big industrial centers. Our experience proves conclusively that, first, you're got to have something to offer, then sell it. Sell as you sold cars under the toughest competitive conditions."

You will notice that Bill Jones makes very little mention of WPB or any other federal agency. They've all been contacted and some work may come from these sources in the future, but he really concentrated on the plants that now have contracts, large or small.

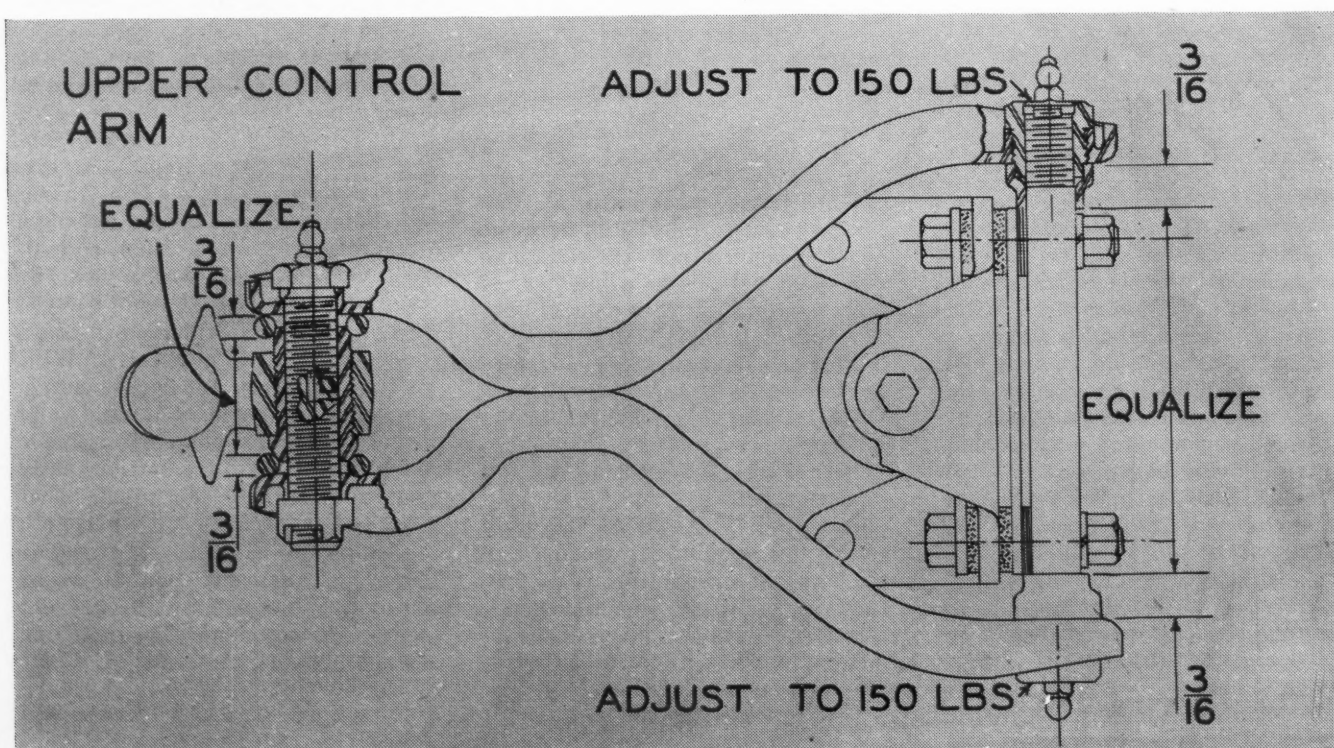
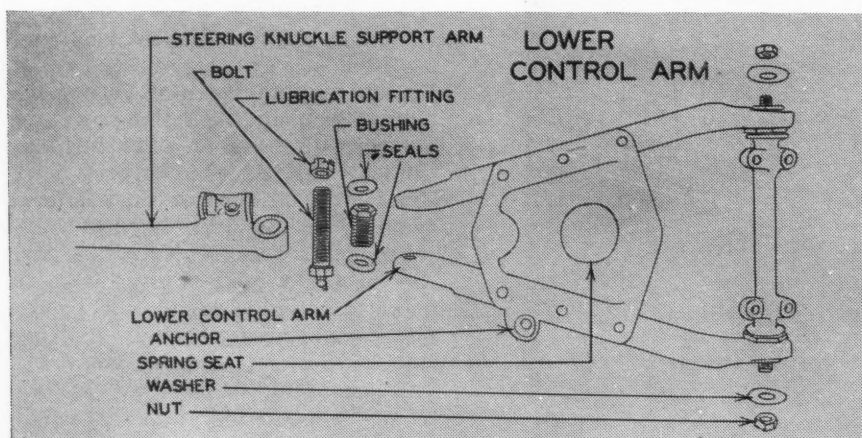
Bill's plant is the old repair shop, an enclosed area of about 60 by 120 feet behind the present service department. The machine shop occupies a space of about 30 by 40 feet.

This corner, as is, will keep Bill
(Continued on Page 59)

FRONT SUSPENSION DATA



Here are all the measurements you need to realign the front-end suspension unit on a 1942 Nash, Models 4260 and 4280.



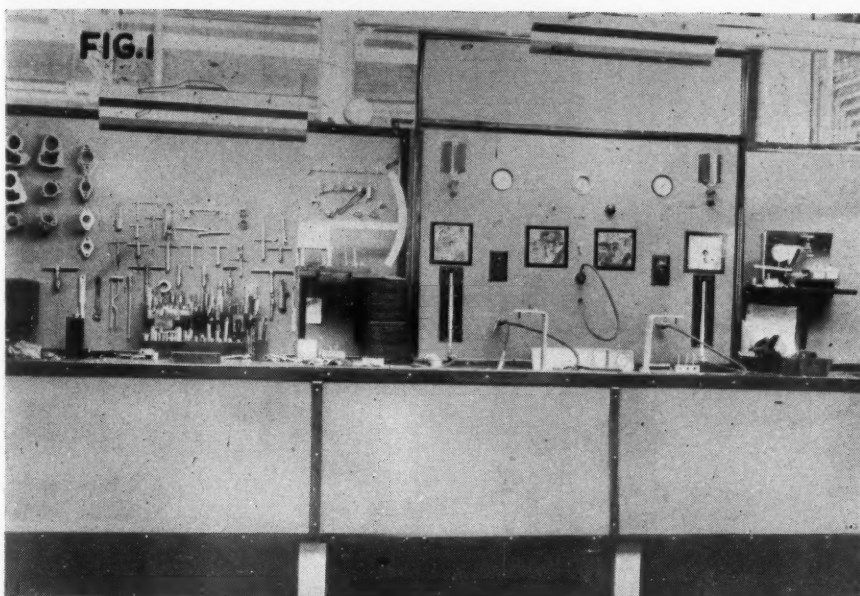


Fig. 1. Center portion of the 14-ft. bench, showing part of one working space at the left. At right is the new handy governor scale and, just left of the test panel, the Zenith Gov-u-retor scale and tools.

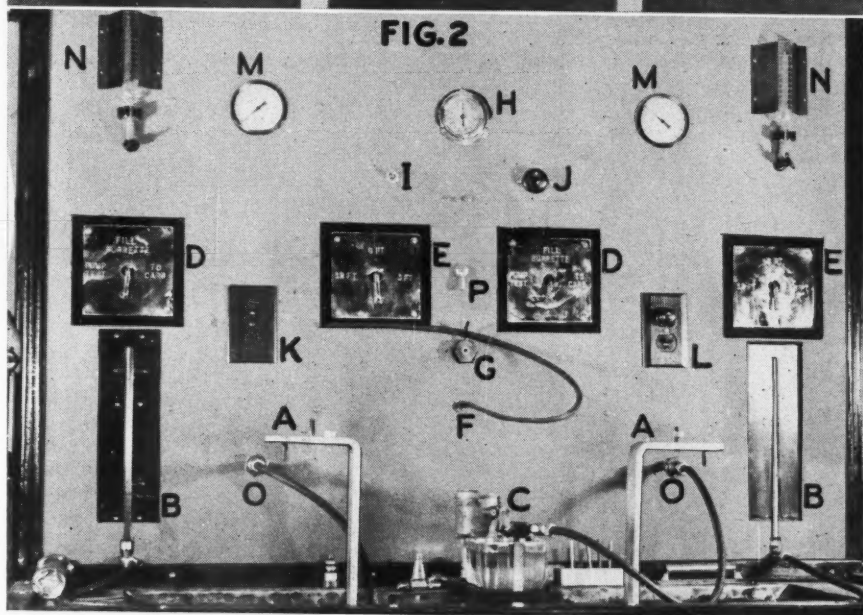


Fig. 2. Close-up of the test panel, showing:

- a. Test stand for both up- and down-draft carburetors. Pans beneath the stands collect the spirit and the pumps return it to the gravity tanks.
- b. Built-in level gage, illuminated from behind panel.
- c. Glass bowl for testing float level on carburetors that have float in the cover (Zenith down-draft and Zenith and Stromberg up-draft, SF type). The upper assembly is completed first and put on the test under proper pressure.
- d. Cock controlling the flow to the carburetor, to the pump-test burette, and to the pump test.
- e. Cock for selecting the proper fuel pressure. This is done by drawing from three different gravity tanks, one with a 3-ft. head, another with a 6-ft. head, and the third with a 12-ft. head. This provides pressures of approximately 1, 2, and 3 pounds.
- f. Vacuum line for testing accelerator pistons and leaks in complete assembly.
- g. Block for testing Zenith vacuum piston assemblies.
- h. Vacuum gage.
- i. Vacuum-pump switch.
- j. Vacuum-pump control.
- k. Lighting switch and outlet.
- l. Switch for electric fuel pumps. Four pumps deliver the spirit to the three gravity tanks. A WI Carter cover, complete with float, etc., is mounted in each tank. Pumps shut off automatically when tanks are full. A 15-plate battery is used. One charge lasts two weeks.
- m. Pressure gages, calibrated in ounces from 0 to 5 pounds.
- n. Pump-test burettes. (Stromberg tool.)
- o. Outlet to carburetor.
- p. Control for vacuum pump. This switches the pump from vacuum to pressure. Pressure side is not used.

SPEEDING CARBURETOR WORK

Special bench enables a shop to handle the growing demand for this service

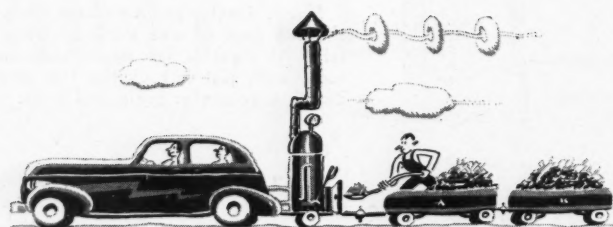
BY becoming acutely gas-conscious, the automobile owning public has imposed an ever-increasing burden on the carburetor department of repair shops. Some shops are getting so much carburetor work that their testing and service equipment has become overtaxed, resulting in needless delay.

This was the situation at the Motor Car Service Co., Detroit,

Mich., until Milt Pullen designed and built the two-man work and test bench described here. The bench is 14 ft. long, with a 5-foot work space at each end. The center 4 ft. contains the testing stands, one for each man. There are no waits after assembly, both men being able to make the following tests: Level, leak, vacuum-leak, vacuum-piston, accelerator-pump,

and the choice of 1-, 2-, or 3-pound pressures for level test.

Each bench has handy cabinets, containing all sizes of fiber and lock washers and screws. Panels are made of 1/4-in. composition board, painted Chinese red and trimmed with black molding. A Chevrolet engine for testing the complete assembly for idle completes the test and service outfit.



THE gas known as producer gas is actually carbon monoxide, and is produced by burning a large quantity of fuel with a slow fire. In the application of this type of gas to automobile operation, the fuel used is usually coal, charcoal, or wood. The fuel which is actually burning gives off carbon dioxide. The unburned fuel immediately above the fire becomes hot and gives off gases which combine with the carbon dioxide to form carbon monoxide, which is passed into the engine and burned in place of gasoline.

In 1940 a producer-gas outfit was developed in England for use in converting existing gasoline-burning trucks, buses, and passenger cars into producer-gas-burning vehicles. This unit is reported to be adaptable to motor vehicles up to 6 tons capacity, equipped with engines up to 244 cu. in. displacement. It can be installed as a built-in unit in the vehicle itself, or can be mounted on a two-wheel trailer attached to the vehicle. The trailer mounting was considered the most practical since it would permit the ready exchange of the unit when it needed maintenance attention. In this way, an overhauled unit could be attached to the truck or bus and it could be continued in service while the other producer unit was being overhauled.

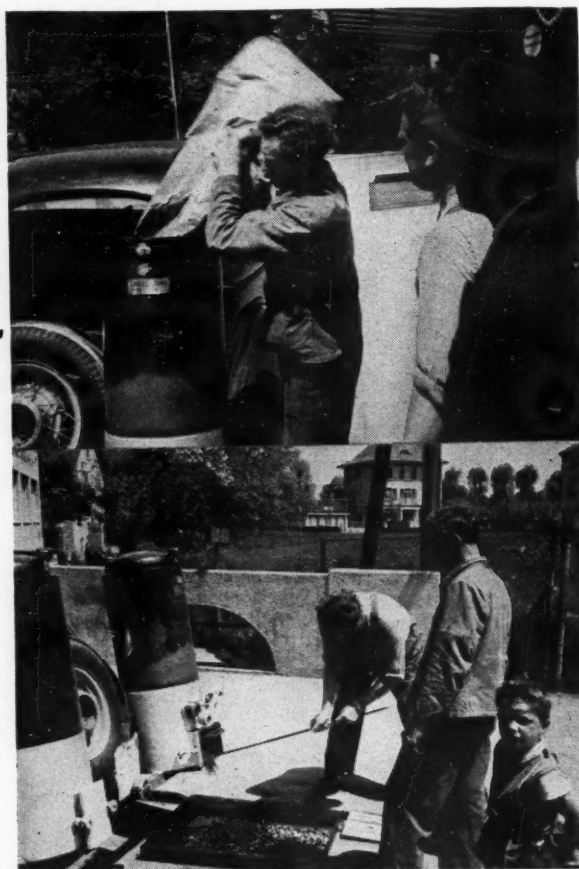
The equipment necessary to convert a gasoline-burning motor vehicle over to producer gas consists of four main parts: The producer itself, in which the gas is created; coolers, in which the gas leaving the producer is reduced in temperature; filters, in which impurities

in the form of minute solid particles are removed from the gas; and the control system, by which the ratio of gas-air mixture is controlled and admitted to the engine.

In order to provide a deep firepot which will hold a small fire and a large quantity of fuel, the producer is designed in the form of a thin steel cylinder approximately 4½ ft. high and 1½ ft. in diameter. At the top is the door through which the fuel is fed to the cylinder, and at the bottom is a clean-out door for removing the ashes. The upper part of the cylinder, for

approximately two-thirds of its length, is surrounded by a water jacket to keep it cool and to retard the burning of the fuel. The air intake which controls the draft for the fire is fitted with an air-metering jet located in the side of the cylinder, near the bottom.

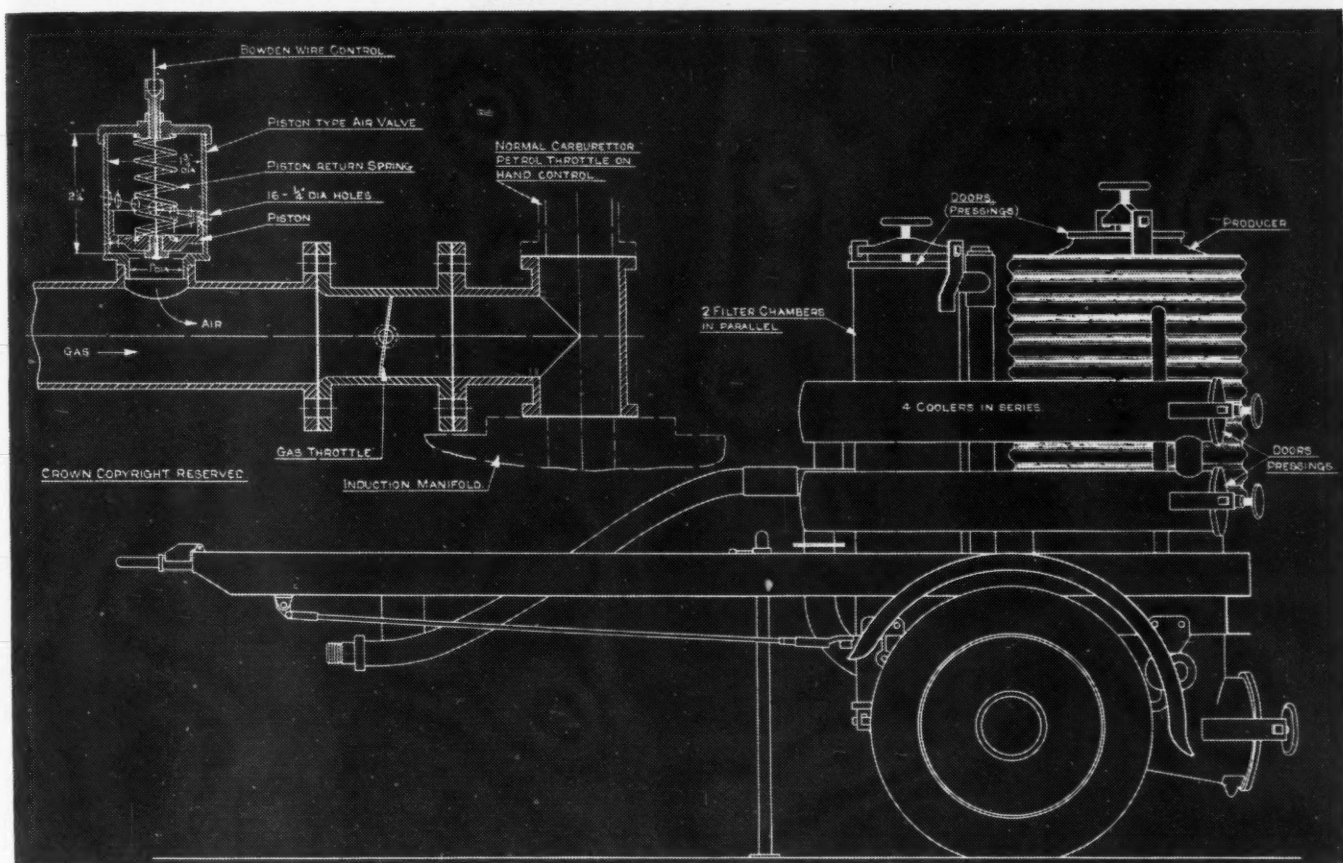
The outlet, through which the smoke and gas leave the producer, connects to four cylindrical coolers. These coolers are about 3½ ft. long and 6 in. in diameter, and are mounted horizontally, two on each side of the producer, and are connected in series. As the gas leaves



Cleaning out ashes and, top, filling the firepot with charcoal.

WILL WE TURN TO

If it ever becomes necessary, we may use



Diagrammatic view of the producer. Section at upper left shows the location and arrangement of the air and throttle valves in conversion unit.

PRODUCER GAS?

By **BOB HANKINSON**

a conversion unit similar to this trailer producer, developed in England

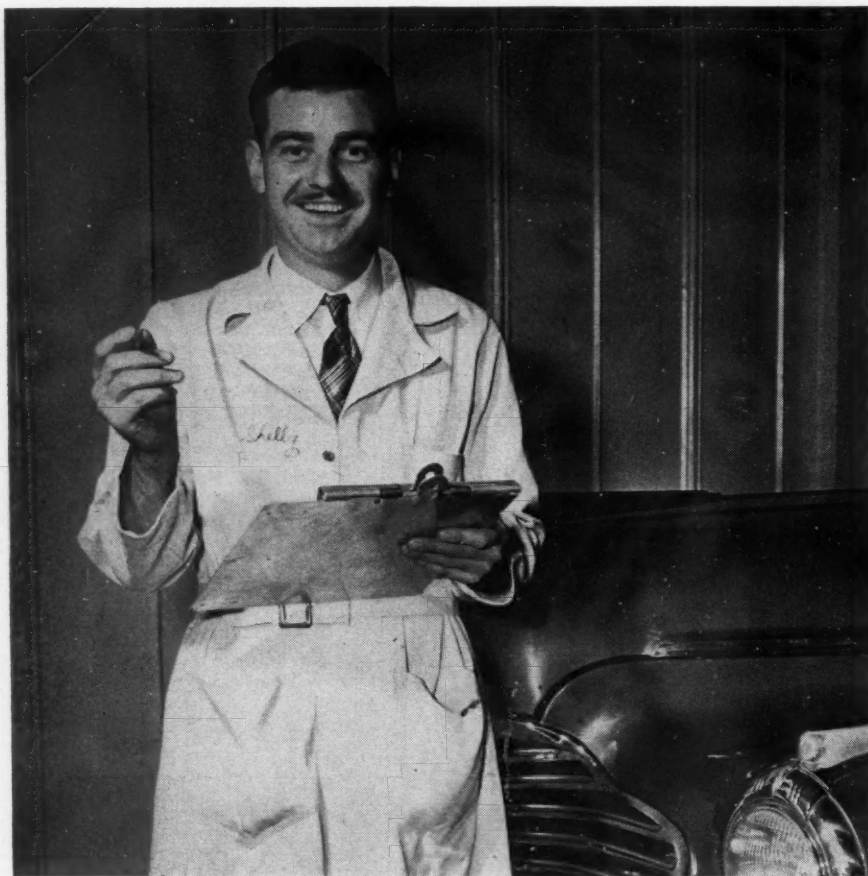
the coolers, it enters the filtering chambers, which comprise two vertical cylinders containing filtering units made of rope fiber in pad form. There are four filter pads in each filter cylinder, arranged so that the gas has to pass through one after another in traveling the length of the cylinder. After passing through the filters where the impurities are removed, the gas enters a flexible hose connected to a pipe leading to the engine.

The gas intake at the engine is connected between the gasoline carburetor and the intake mani-

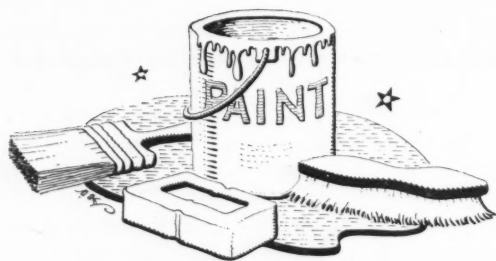
fold, so it is not necessary to disturb the carburetor. A manual control is provided for the carburetor so that it can be completely closed when the engine is operating on producer gas. A shut-off cock is installed in the gasoline line to cut off the gasoline supply to the carburetor.

The producer-gas feed to the engine is controlled by the accelerator pedal operating a throttle valve, just as in normal operation. However, to admit air to the engine for the proper gas-air ratio, an air valve is necessary in the producer

gas line above the throttle valve. The air valve is controlled manually by a wire cable, which moves a piston up and down in a small cylinder. Around the circumference of this cylinder, in spiral form from one end to the other, is a series of small holes. As the piston moves up in the cylinder it uncovers one or more of these air holes, providing the proper amount of air to give the correct air-gas ratio. Then, as the throttle valve is opened, this mixture is admitted to the engine by way of the intake manifold.



HOW'S YOUR SHOP APPEAL?



By ROSE LU GOLDMAN

SEE YOUR SHOP AS OTHERS SEE IT. Women spend 80 cents of every family dollar, and what they think of your shop decides to a great degree its success. Your answers to these ten questions will show you just how you stand with the gals, and ought to give you some clues to improved business.

1. Do your men make an effort to greet every customer with a smile—no matter how great the effort or how small the sale? Yes... No...

2. Do you consider a woman driver more or less of a nuisance around the shop? Yes... No...

3. Do you go up to and speak to the woman customer

a. As soon as she drives in? ...

b. When you finish whatever you're doing? ...

4. Take a look at the outside of your shop for a moment:

a. Is the paint clean? Yes... No...

b. Are there piles of rubbish in sight? Yes... No...

c. Are signs easy to read and clean? Yes... No...

d. Are displays attractive, neat, and eye-catching? Yes... No...

5. Now look indoors a moment:

a. Does it seem cheerful and light? Yes... No...

b. Are there piles of rubbish (especially in corners)? Yes... No...

c. Are signs and displays fresh and clean? Yes... No...

d. Are all painted surfaces clean and fresh-looking? Yes... No...

6. Efficiency and orderliness go hand in hand. Do your mechanics look clean and efficient? Yes... No...

7. What do you do when an owner asks for a job that you aren't equipped to do? (Check one.)

a. Tell her, "I'm sorry, but we don't do that kind of work." ...

b. Tell her, "It's very hard to get that done these days—priorities, you know. We don't advise it." ...

c. Tell her, "While we're not equipped to do this work right in our own shop, ma'am, we do know a dependable man. We'll be glad to take your car to him for you." ...

8. What percentage of your jobs come back for adjustment, or to be done again? ...%

9. Is work always done when promised? Yes... No...

10. Do you make provision for financing repairs? Yes... No...

(Answers on Page 68)



"Who the heck's been a customer here for the last nine years—me or Leon Henderson?"



1. All tires must be inspected carefully before recapping to make sure there are no internal cuts or breaks, that no nails are present, and that the casing is in good condition generally.



2. Buffing to remove all high spots from the tread so the retreaded tire will be in balance. Buffing is confined to the tread and shoulders of the casing.



3. Finish buffing on a wire wheel.

WAR-TIME RECAPPING

A picture series showing how one shop keeps up with the mounting demand for rebuilt tires to tide over the present rubber shortage

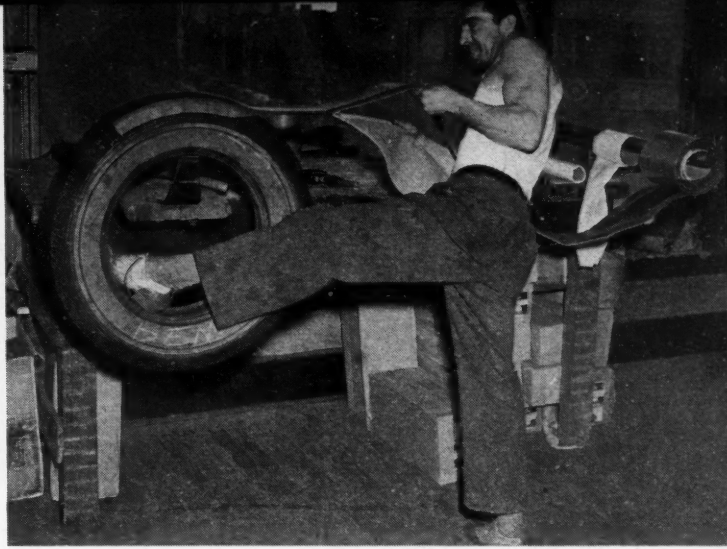


A tire with a tread worn as badly as this would have been rejected by most recapping shops before the present rubber shortage developed. Some shops, at the insistence of the owners, are recapping such tires today, but refuse any guarantees.

This is a good tire for retreading or recapping.



4. Applying cement to the prepared surface of the casing. The cement is allowed to dry before the camelback is applied.



5. Applying the camelback. The operator removes the protective cloth from the under, or adhesive, side of the camelback with one hand while he pulls the camelback into position with the other. If the buffing has exposed the breaker strip, a strip of cushion gum must be applied before camelback is applied.



6. Cutting the camelback. A 60-degree cut is used here, though some shops prefer a 90-degree cut, a diagonal cut from one side of the camelback to the other, or a saw-tooth cut.



7. The ends are painted with a rubber solvent. After this dries, the ends are brought together.



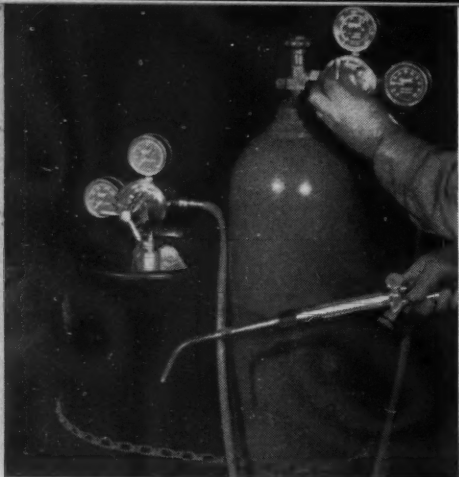
8. Seaming, or stitching, the ends to insure a smooth joint.



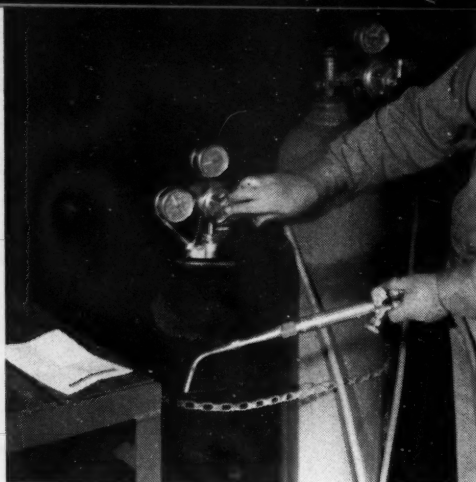
9. Placing the tire in a curing mold, where the new tread is vulcanized to the casing at a temperature of 320 degrees Fahr. Curing time is 70 minutes for passenger-car tires.



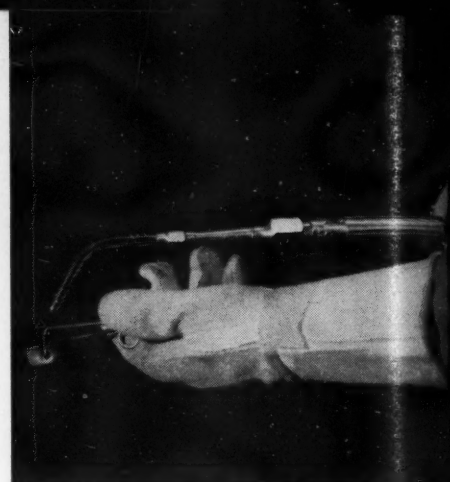
10. Removing the retreaded tire from the mold.



1. From instruction book, select right size of head for job and correct oxygen and acetylene pressures. With blowpipe oxygen valve open, turn in oxygen-regulator pressure-adjusting screw to pressure desired. Close blow-pipe oxygen valve.



2. With the blowpipe acetylene valve closed, turn in the pressure-adjusting screw on the acetylene regulator until the delivery-pressure gage shows a pressure of 5 lb. per sq. in. Acetylene must never be released into the air near other welding work, or near sparks, flame, or other source of ignition, or in poorly ventilated space.



3. Before lighting blowpipe, put on gloves, have goggles ready, and practice positioning lighter as shown. Blowpipe should be pointing slightly down and to one side away from body. Grip lighter by finger rests so flint is about 1 in. away from end of the blowpipe tip. Never use matches in lighting.



7. As blowpipe oxygen valve is opened slowly, flame turns blue. Nearest tip is small, brilliant white cone, known as the inner cone. Next is a whitish cone, the excess acetylene feather. Finally there is the faintly luminous blue envelope flame.

ADJUSTING

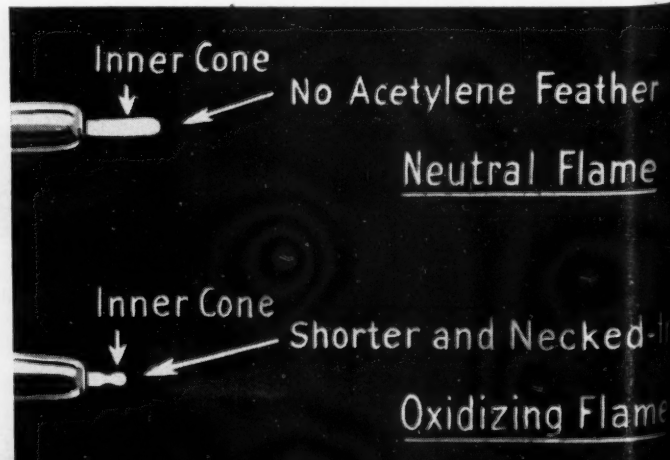
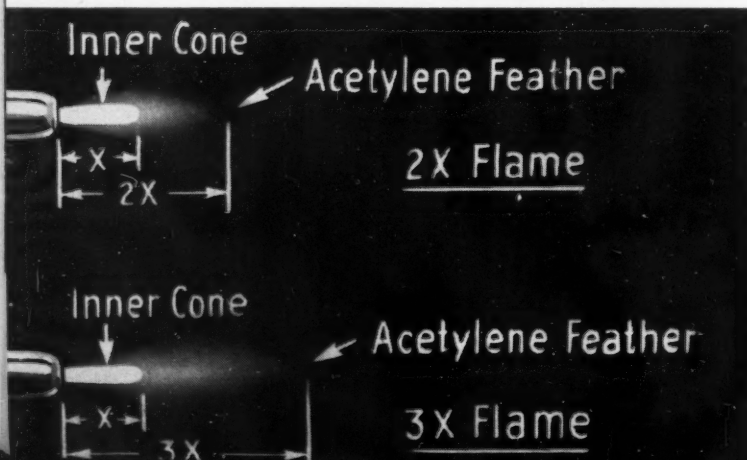
Without proper adjustment of the flame, satisfactory results with oxy-acetylene welding and cutting cannot be expected. Photographs on these pages show the steps required to light and adjust properly the flame of a standard-sized blowpipe, helpful to the experienced operator as well as to the beginner.

A study of the sketches will aid in the easy identification of a neutral flame, the excess acetylene flame and the excess oxygen flame.

Photos courtesy the Linde Air Products Co.

8. Carburizing or reducing flame, designated by the length of acetylene feather in relation to the inner cone. If any difficulty is encountered in obtaining desired ratio, first adjust flame to neutral, and then gradually increase the acetylene.

9. To obtain neutral flame, start with an excess acetylene flame and then close blowpipe valve slowly until excess acetylene feather disappears. To obtain an oxidizing flame, either increase the oxygen or decrease the acetylene still further. An oxidizing flame can easily be recognized by the necking-in and brilliant purple color of inner cone.



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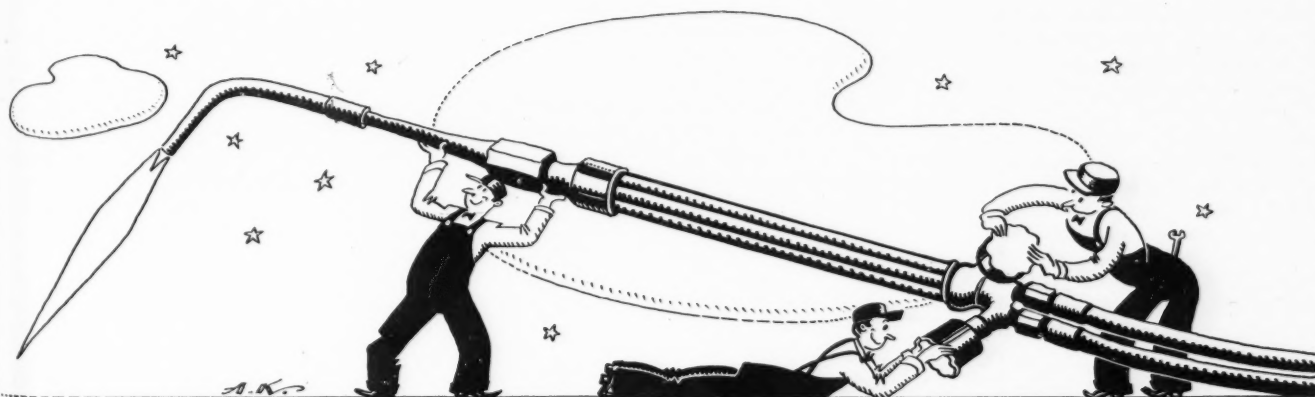
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4. Crack blowpipe oxygen valve till oxygen is heard flowing through pipe. Open blowpipe acetylene valve half turn and strike lighter at blowpipe tip. If using acetylene from generator, open blowpipe acetylene valve two turns, first opening acetylene valve at hydraulic back-pressure valve.

5. This is how the flame looks as it is first lighted, burning with a long yellow flame. If oxygen valve is not cracked, a smoky flame will result. If the joints at tip connection or head connection leak, acetylene may burn back at these points. Turn off blowpipe acetylene valve at once, then turn off the blowpipe oxygen valve and tighten connections.

6. With flame burning, turn in pressure-adjusting screw of acetylene regulator till delivery-pressure gage shows 5 lb. per sq. in. Acetylene pressure was set at 5 lb. per sq. in. with blowpipe valve closed but when this valve is opened the pressure drops off.

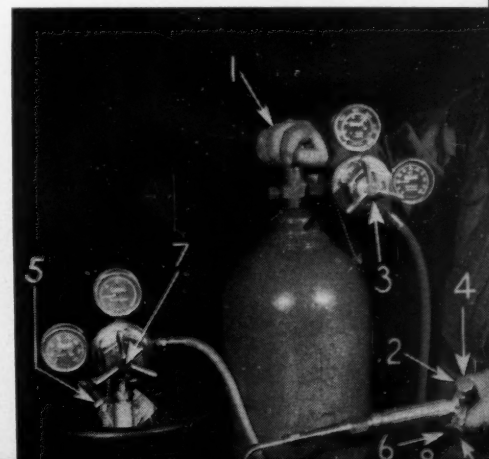
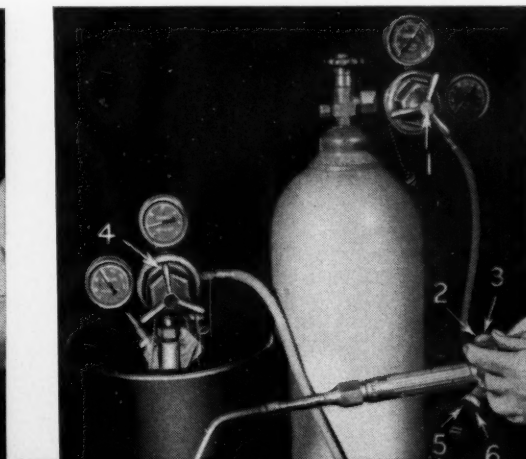
THE BLOWPIPE FLAME



10. To turn off blowpipe, close blowpipe acetylene valve and then the blowpipe oxygen valve. Never lay down or hang up a lighted blowpipe except in place especially provided for hanging it. Instructions vary with some blowpipes, but complete instruction booklets always accompany blowpipe.

11. When work is stopped for five or ten minutes, gas pressures should be released from the hose lines and second stages of the regulators by doing the following: 1. Turn out pressure-adjusting screw on oxygen regulator; 2. Open blowpipe oxygen valve; 3. Close blowpipe oxygen valve. For acetylene, repeat operations at points, 4, 5, and 6.

12. For longer stoppage: 1. Close cylinder valve; 2. Open blowpipe oxygen valve. Wait till both gage hands return to zero. 3. Turn out pressure-adjusting screws. 4. Close blowpipe valve. For acetylene repeat the operations at points 5, 6, 7, and 8.



Battery Rental Subject To New Price Ceiling

PRICE control regulations covering the sale of automotive services were amended Aug. 19, chiefly to clarify some points and eliminate the distinction previously made between service sold consumers and that sold others. Under the amendment, the word "consumer" is dropped from the title of the regulation, and control of prices is extended to cover wholesale services and commercial and industrial consumers as well as ultimate consumers.

Further, the amendment places certain types of service, formerly covered by other price regulations, under regulation No. 165, which covers service. The only such change of interest to automobile repairmen is that affecting the maintenance, rental or repair of batteries. Effective Aug. 19, battery service is to be priced in accordance with the rules laid down for other automotive accessories, such as radios.

The OPA has issued in connection with the price amendment explicit instructions for filing a statement of ceiling prices with local War Price and Rationing Boards. This must be done by Sept. 10.

The list may be prepared on the shop's own stationery or on plain white paper. It must include the following:

a. A list of the services supplied during March, 1942, for which regularly prices were quoted in that month, together with an appropriate description of each.

b. The pricing method, if any, regularly used during March, 1942, for services on which no flat or set price was used and which were priced according to an hourly rate or other method.

c. The highest prices charged for services supplied or offered during March, 1942, for which prices were regularly quoted in that month.

d. All customary allowances, discounts and other price differentials customarily allowed or offered (would have been given) in March.

e. The regulation requires that the

list be kept up-to-date and complete by adding to its descriptions, prices, rates and pricing methods and charges, for all services sold for the first time after March, 1942, which are not the same as or similar to, or same pricing methods and charges, applicable to services for which prices have already been filed. If a new business is started or a new service not covered in the previous statement is added, such a statement must be prepared within 10 days and filed in 20 days. The new statement must contain all the items of information listed under a, b, c and d. In addition, it must set forth the date when the service was first sold and the manner in which the maximum price, rate, or pricing method and charges were determined, including the name of the most closely competitive seller of the same class as the shop filing, if the maximum price is determined by reference to such competitor's prices.

As previously explained, a shop that uses the Chilton Flat Rate and Service Manual may comply with the requirement that a ceiling-price statement be filed by naming the manual and giving the number of the edition. The current edition of the Chilton manual is the sixteenth. If any deviations were made from the manual prices, it is necessary as noted above to explain them in the statement.

Change New-Car Quota

IN announcing the September quotas for new passenger automobiles, the OPA has ruled that all accumulations of reserve cars, that is, cars that were allotted for distribution but for which no certificates were issued by local boards, are to be recalled. Previously these cars were permitted to accumulate in the regions to which they were originally allocated. The new step is taken, according to the OPA, to relieve local boards of the clerical detail entailed by the carry-over method.

Withdrawal of unused quotas will not restrict sales, the OPA points out, because the September quota has been set at 35,500, compared with the August quota of only 13,250.

Parts Return Rule Eased

Easing of the regulation that makes it necessary for a jobber to receive a worn or broken part before he can sell a new one was announced by the WPB Aug. 3. Under the new ruling, it is not necessary for the purchaser to deliver the old part provided the new part is not installed in the consumer's vehicle by a repair shop and provided the consumer signs a statement that he will use the new part for replacement only and will within 30 days dispose of his used part through regular scrap channels. The rule is intended to make it easier for owners who do their own repair work to obtain parts.

Regrooving Banned

Since Aug. 10, regrooving of tires has been forbidden by the WPB except when approval has been obtained from Amory Houghton, director general for operations. The reason advanced is that in most cases regrooving wastes rubber instead of conserving it.

Anyone desiring to regroove tires must appeal in writing directly to the director general for operations, Washington, D. C., setting forth the reason for the request, and the amount of rubber that regrooving will save. This sounds like difficult case to prove, and it is, with the result that the WPB is reported as denying the vast majority of appeals.

Tire Quotas Reduced

WITH the single exception of Grade II passenger-car tires, which are available only to war workers who can qualify, all tire quotas for September are smaller for September than for August. The sharp cut, it is explained by the Office of Price Administration, follows the normal seasonal decline in the demand for tires.

New tires for truck will be limited this month to 239,444, as compared with 316,695 in August. The quota for recapped tires and recapping services will be 252,258, compared with 355,-

WASHINGTON WHISPERS



883. The inner tube allotment is 262,261 against 347,696.

Passenger car tire allotments are 38,297 new tires for List A applicants, 115,544 Grade II tires, 486,468 recapped tires or recapping services, and 333,450 inner tubes. During August, the quotas were 58,308 new tires for List A owners, 637,959 recaps, and 418,910 tubes. Only the Grade II allotments were lower, numbering 87,860 in August.

* * *

Along with automobile racing, stunt and thrill shows conducted with automobiles also were included in the ODT ban of July 31. "The language of the order was made sufficiently broad to cover all forms of automotive exhibitions and contests," Joseph B. Eastman, director of the ODT, points out. "Since the order was designed primarily to conserve rubber, it is hardly reasonable to assume that use of tires in so-called thrill shows would be permitted and auto racing prohibited."

* * *

Advance notice was given by the OPA Aug. 21 that tire quotas for September will be less than for August. Local boards were instructed to make the "strictest possible interpretation" of a recent amendment to the tire-rationing regulations restricting truck eligibility to vehicles essential to the war effort or public health and safety.

* * *

Seven New York State counties, not included in the temporary gas rationing plan or in the permanent plan that became effective July 22, went under the same restrictions as the rest of the East on Aug. 22. The counties are Monroe, Livingston, Orleans, Genesee, Wyoming, Erie, and
(Continued on page 92)

★CARS IN STORAGE

Putting cars (both new and used) in storage has had a pretty good going over, with information on how to do it coming from the car manufacturers and others. Naturally the time has not come to do much thinking about taking the cars out of storage and putting them into service, but some few new cars that have been stored for a moderate length of time and then put into service give some indication that there is more to preparing new cars for service than meets the eye. Since the government has, or will have, quite a financial stake in the stored new cars, there is some concern about the thoroughness of preparation for service upon removal for storage.

Since the government has this financial interest in these cars, it is possible that an adequate process of preparation for service will be developed by some branch or developed elsewhere and approved by an appropriate bureau. It may come as a suggestion or, of course, it is possible that it could come as a regulation.

On the basis of very incomplete evidence, it appears among other things that gaskets dry out and will no longer hold water or oil, with resultant leaks. In addition, if there have been any internal leaks before storage, rust or corrosion enters the trouble column. It seems that an internal inspection of the engine will be necessary.

★RECAPPED TIRES

Reports of trouble with recapped tires are drifting into the ODT in sufficient numbers to make the boys wonder if vehicle operators are disregarding all previous warnings about "taking it easy" with the inferior recaps or if careless workmanship and inadequate equipment are involved. One summary of his troubles by an operator was that the recaps he was getting "do not last long enough to get them paid for."

This may all add up to an investigation of retreading practice, which could in the end recommend that establishments producing a poor grade of recapping job would be ruled out since it was not using a scarce material to the best advantage.

★ARMY MANEUVER

As Ordnance took over Motor Transport from the Quartermaster Corps only recently, there is very little tangible evidence on just what the change means. However, a number of trained automob-
(Continued on page 74)



NEWS

KNOCK SILENCER

GRATUITOUS critics of the automobile industry's war effort should be silenced by the promotion of Ernest C. Kanzler, former chief of the Automotive Branch of WPB, to the job of deputy chairman of the progress program. Since Kanzler's assignment in Detroit was to supervise the conversion of the automobile industry to war production, his transfer to Washington can be construed only as an acknowledgment that the job has been done.

The promotion came on Aug. 4, just 6½ months after he had been appointed to head the conversion effort in Detroit. That speaks volumes in

refutation of ill-considered charges by competing interests and immature reporters that automobile manufacturers were fumbling the ball on war production. Kanzler's own remarks on leaving Detroit are enlightening:

"I could not leave my Detroit activities with the WPB without paying tribute to the automotive industry and to the plants in the Michigan region which have cooperated so wholeheartedly in the war effort. The magnificent job done by the industry . . . has established a reputation for this district throughout the world."

Kanzler's post as chief of the Automotive Branch is being taken by R. L. Vaniman, of Detroit, who had been Kanzler's lieutenant. Vaniman formerly was executive manager of the African Division of Chrysler Corp.

TUBE GIRDLE. Cotton-cord protector, developed by Firestone, permits tube to be used in casing ordinarily considered unfit for use. "Girdle" prevents chafed tubes.

TIRE SANDAL. To stretch out tire mileage, U. S. Rubber will produce this "sandal" of asphalt-treated woven cotton. Speed when using the sandal must not exceed 30 m.p.h.

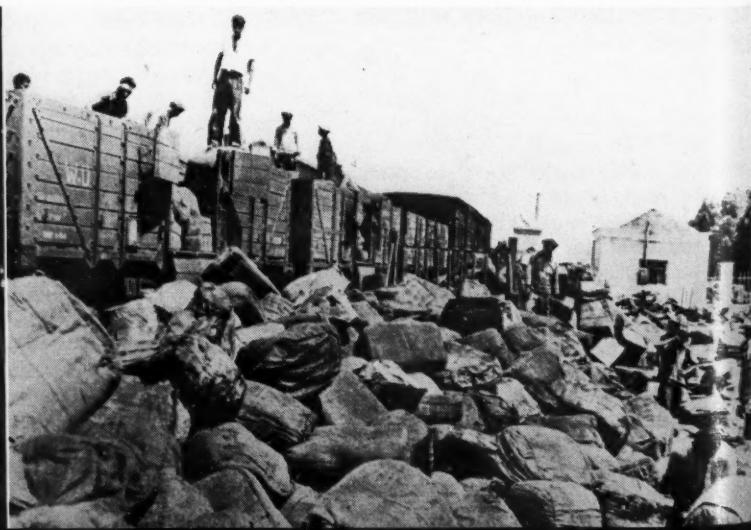
RUBBER SCARE

WAR restrictions have already forced 1,000,000 cars and trucks off the highways of the country, according to registration figures made public by the rubber committee of the National Automobile Dealers Association. The registration figures, cover-

CANAL RUBBER. A native Panamanian taps a rubber tree of the *Castilloa* species. It is estimated that there are 50,000 of these trees in the Canal Zone. Each will yield about one pound.



RED TIRES. Persian laborers unload crepe rubber from Britain at a rail head on the Caspian Sea. Much material for Russia is brought from the Persian Gulf to the Caspian, then across Persia.



DETROIT LETTER

By ED WARNER

ing 25 states for the year ending July 1, 1942, shows a drop in passenger cars of 391,682 and in trucks of 34,633, a total of 426,315. The same rate of decline in the remaining 23 states would raise the total of cars and trucks taken out of service to more than 800,000. To this would have to be added the vehicles laid up or scrapped since July 1.

A breakdown of the figures for the 25 states shows that it is not gasoline rationing but rather the acute rubber shortage that has caused the decline in passenger car registrations. In states where gasoline has been rationed, the decline for the year ending July 1 was 3.48 per cent, while in non-rationed states the decline was 2.83. The difference is not nearly so large as might reasonably be expected if gasoline rationing were the cause. Further, two states in which gasoline use is not restricted show a drop in registrations higher than in any state in the rationed area.

In the case of trucks, the decline in rationed states was only .26 per cent, compared with a drop of 2.41 per cent in the non-rationed area. This might

(Continued on Page 40)

HENRY KAISER'S accomplishments on the West Coast as a mass producer of Liberty cargo ships and, before that, his construction feats in building Boulder Dam are not underestimated in Detroit. But automotive engineers and production men who have had intimate contact with the problems of building Army bombers are inclined to believe that the West Coast production genius oversimplifies the task of building huge cargo-carrying flying boats. They remember an automotive manufacturer who boasted that he could build 1000 planes a day but who now is finding it difficult to produce bombers on anything like a volume basis. They also recall the late and unlamented Reuther Plan, which called for 500 planes per day from automotive plants. That also proved an impractical idea when it was boiled down to actual productive technique.

Kaised asserted that if given the go-ahead by the government, he could produce 70-ton flying boats of the Mars type within 10 months in converted California shipyards. He also proposed to build cargo-carrying

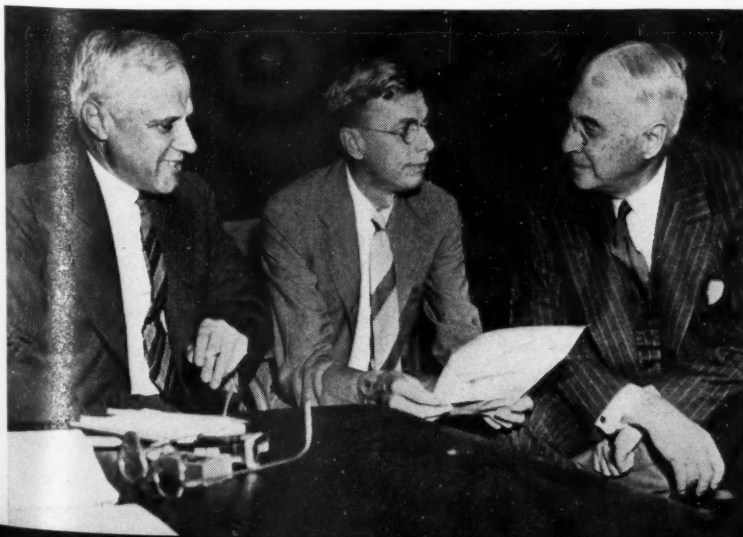
aircraft of even larger capacity, say 100 or 200 tons, if given governmental cooperation.

The automotive industry first approached the problem of building two- and four-engine bombers for the Army in quantity lots in October, 1940, when Lieut. Gen. William S. Knudsen and Lieut. Gen. George H. Brett, now commanding the Air Forces in the Southwest Pacific, asked the automobile companies to cooperate in the program. A plan was worked out with the assistance of Brig. Gen. Jimmy Doolittle, then a major representing the Air Corps, for the manufacture of three types of bombers.

The job was split up among several automotive, body and rubber companies for the manufacture of the bomber airframes, including the fuselage, wings, tail assembly and landing gear. Ford, Chrysler and General Motors each was made responsible for one of the three bomber types. Other participants in the program included Hudson, Briggs Mfg. Co., and Goodyear. The automotive companies were scheduled to ship the airframe subas-

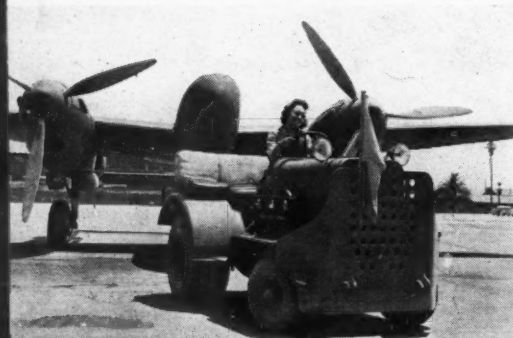
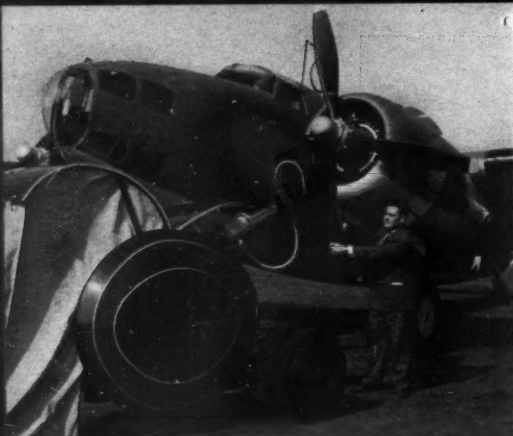
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FACT FINDERS. Members of the three-man committee appointed by the President to study rubber problem. Left to right: Dr. Karl T. Compton, James B. Conant, and Bernard Baruch.



FIRST TAXI. New York's original taxicab is shown at the antique automobile derby and fashion show held recently at the Fairfield, Conn., Hunt Club for the benefit of the United China Relief.





be explained by the fact that the rationed states contain more war industry than the non-rationed states for which figures are available, and stand in greater need of commercial vehicles.

Further evidence that it is rubber and not gasoline that is really worrying owners is supplied by a study recently made by the American Automobile Association. The figures on car use, assembled from reports of AAA clubs, toll bridges, national parks, and Public Roads Administration traffic counts, show that traffic was down substantially in both rationed and non-rationed areas.

The PRA traffic counts, for example, show that 38.5 per cent less vehicles used highways in June than in the same month a year ago along the gas-restricted eastern seaboard, while in the non-rationed areas the drop amounted to 22.4 per cent. This count was for all types of traffic, and the drop in passenger-car use may have been greater than the decline shown for total traffic, since commercial-car traffic has probably increased. Purely recreational driving shows a greater difference between rationed and non-rationed zones, with the former showing a decline of 73.9 in the number of motorists visiting national park and other federal areas, while similar areas in non-rationed parts of the country were visited by 48.9 per cent less motorists than in June last year.

TESTS EASED

FOLLOWING the lead of Connecticut, which recently suspended safety inspections of motor vehicles for the duration, New Jersey has taken rationing and other war-time

PORTABLE X-RAY. Lockheed technician using device which is used to detect structural defects in plane after battle in air.

PLANE SHEPHERD. This tractor, driven here by a girl war worker, is used to tow planes into position at Army air bases.

BOX TANKER. This railroad box car was recently converted for carrying fuel oil by installation of new synthetic rubber tanks.

OIL FOR EAST. Workmen making first weld on new pipeline from Texas to Illinois. At top, they are lining up the big sections.

restrictions into account and eliminated one of its semi-annual inspections. The inspections scheduled for this fall have been suspended and inspections to be made next spring will be the only ones necessary during 1943.

POLICE AID ODT

STATE and local police in New York will henceforth enforce the truck-conservation orders of the Office of Defense Transportation. This decision was reached recently in an agreement between the ODT and the New York State War Council. Police in New York State will have power to enforce within the state any ODT regulation which has been matched by a State War Council order, several of which already have been issued.

Discussions between ODT and officials in other states, looking toward similar agreements, already are under way.

STAMPS FOR PLATES

MANY states plan to use tax stamps in 1943 for the registration of motor vehicles, a survey conducted by the Ohio Department of Highways indicates. Standard metal plates are unavailable because the War Production Board has limited metal plates to four square inches.

States planning to use windshield tax stamps, of approximately the same size as the federal \$5 use tax stamps now required on all motor vehicles, include Idaho, Iowa, Kentucky, Nevada, North Dakota, and Oregon. Georgia plans to use tax stamps both on the windshield and the rear window. Other states now considering motor vehicle tax stamps are: Alabama, Arizona, California, Colorado, Maine, Michigan, Missouri, New Mexico, North Carolina, Ohio, Oklahoma, and Utah. Texas considered using tax stamps, but its law requires metal plates. Three states—Florida, Virginia, and Wisconsin—plan to use both tax stamps and metal tags.

Small metal year tags to be used with present 1942 plates will be used in Indiana, Kansas, Maryland, Minnesota, Montana, Nebraska, New Jersey, New York, Pennsylvania, South Dakota, Vermont, West Virginia, Washington, and the District of Columbia. Other states are considering the use of a year tag.

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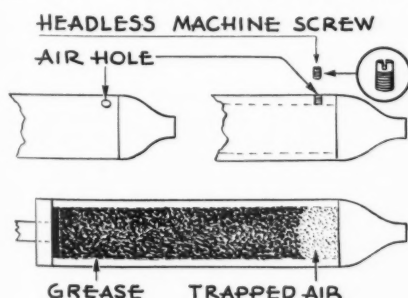
★ SHOP KINKS ★



Here's your chance to pick up a little cigaret money. We'll pay five bucks (\$5.00) for every Shop Kink accepted and printed. So send 'em in to us—some short cut you use in doing a job easier and quicker than the other fellow—some special tool you made when you couldn't buy one to do the job—and we'll do the rest. Incidentally we won't accept any that have previously appeared in any other automotive publication. Here are some that were accepted this month

FILLING GREASE GUNS

To fill grease guns easily and to keep air from becoming trapped in the gun, I drill a hole in the bottom



end of the gun and tap it for a headless machine screw. I fill the gun with grease until the grease starts to come out the hole, then I plug the hole with the headless machine screw.—Ray Scott, Route 4, McAlester, Okla.

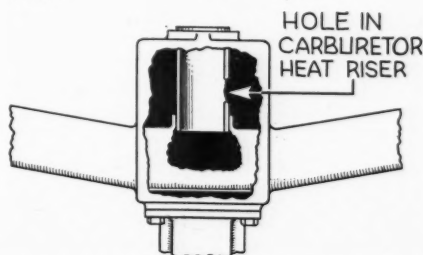
QUIETING REAR

We've found a method of removing a rattle in the rear of a 1940 Plymouth car that sounded like a loose spare tire or tools or a vibration of the rear-compartment floor panel. This noise may be the fanning of the rear spring leaves. The condition can be corrected by installing spring clips securely fastened on the front and rear ends of both springs approxi-

mately 12 in. from the spring eye.—R. J. Sauers, Service Manager, Charles E. Mould, Jr. Agency, Kalamazoo, Mich.

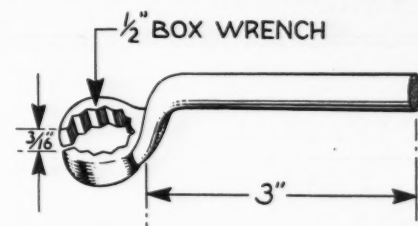
HEAT RISER TUBE

A hole in the carburetor heat riser of a 1939 Pontiac car, due to a burned-out tube, will allow exhaust gases to pass into the intake manifold, causing an uneven-running motor at low speeds. Satisfactory repairs can be made without removing the heat riser by removing the carburetor and inserting a sleeve or piece of metal tubing into the heat riser. This can be a split sleeve, such as is used to adapt a small exhaust pipe to a large muffler, but should be large enough in diameter so that it is a press fit. In making the installation, it should cover the hole completely. To insure a good seal in the event that a slotted sleeve is used, the slotted section should be to the opposite side of the hole.—Gene Shermeister, 8th and Lincoln, Sheboygan, Wis.



COMPRESSION NUT WRENCH

A handy wrench can be made to tighten the compression nut on the vacuum brake line to the distributor on a Ford car, by grinding a 3/16 in. opening in one end of a 1/2 in. box wrench and cutting of the other end to allow about a 3 in. handle.—C. Wesley Dickinson, Central Garage, 650 Farmington Ave., Kensington, Conn.

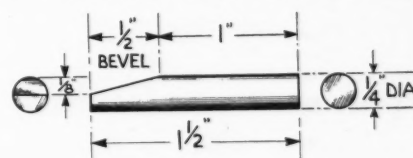


ELIMINATING RATTLE

A rattle developing in the rear of a 1940 Plymouth, which appears to be immediately below the floor of the trunk compartment, can be eliminated in some cases by removing the rubber body insulators and bolts and replacing the insulators with woven brake lining, cut to size and drilled. In the place of the standard bolts, use a 3/8 x 1 1/2 in. S.A.E. cap screw at the six rear body bolt holes. In severe cases, it may be necessary to enlarge the body bolt holes to align the body and frame.—D. W. McDermott, R. 3 Box 70D, Charleston, W. Va.

CLUTCH FINGER WEDGES

To remove a clutch assembly in a 1936-37 Packard car, it is necessary to depress the clutch pedal and insert wedges at the clutch fingers, and then remove the assembly from below. In the event that you do not have the



special tool as supplied by the factory, one can be made from three pieces of 1 1/2 in. rod 1/4 in. in diameter and beveled to a 1/8 in. on one end, starting the bevel 1/2 in. from the end.—Edward Sladek, Portage Park Garage Co., 5105-07 Irving Park Blvd., Chicago, Ill.

TIMING MARKER

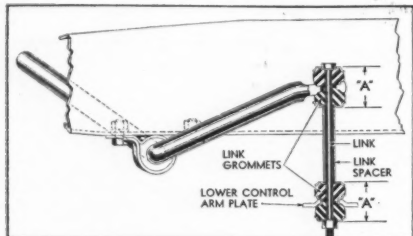
As timing marks are generally hard to see and also difficult to reach, a simple method of making them more visible is a big help when timing an engine. A convenient marker can be made by inserting a piece of chalk in a piece of tubing, the end of which has been split to receive and clamp the chalk.—Eager L. Simpler, 21st and Race Sts., Philadelphia, Pa.



SERVICE HINTS



FROM THE FACTORIES



Front Stabilizer

To insure proper riding qualities and stabilization on 1942 Buick cars, the adjustment should be properly made at the stabilizer link.

In accordance with factory instructions, the nuts on both ends of the link should be tightened to the limits of the threads, the distance between this position and the end of the link should be adjusted to 1 11/16 in. If the dimension is incorrect when the nuts are tight, they should be adjusted to give the correct distance.

Squeaks in Clutch Mechanism

A squeak in the clutch on a 1942 Cadillac car is most likely to be a contact between the driving lugs and the clutch pressure-plate assembly where the lugs project through the cover. This squeak can be eliminated by applying a thin coat of water-pump grease on a feeler gage and passing the gage between the points of contact. Another method of greasing is to disengage the clutch and rub the grease on the exposed parts of the bearing surface and then engaging and disengaging the clutch a number of times. Care should be taken so that an excessive amount of grease is not used.

Rear Axle Assembly Change

The Chevrolet has made a change in the 1942 two-speed rear axle assembly. The first type differential axle housing cover has two pieces of rolled steel, welded on the inside of the cover, the purpose being to contact the pads on the differential bearing caps, thus giving additional support against any axial movement of the bearing caps, due to end thrust of the tapered roller bearings.

The replacement type cover has the

same purpose, but the bearing cap supports are stamped into the housing cover and, therefore, it has been necessary to lengthen the caps, as the late type will not be as deep as they were on the welded type.

In service, the old axle housing cover can be used with either the old or new differential bearing cap. The new cover can be used only with the new type differential bearing cap.

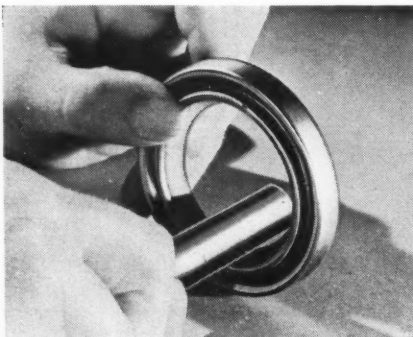
The change has been made to both the 5.64-8.22 and the 6.17-8.22 ratio two-speed rear axle. The first differential bearing cap is part No. 3651410 and the second part No. 3667205. The first differential housing cover is part No. 3651359, the second is part No. 3667223.

Installing Universal Joint

In assembling a universal joint to the transmission main shaft on all Ford products, make sure that the screw is drawn down tight and the washer is seated in the counterbore of the universal joint. When correctly assembled, the main shaft rear bearing hub is against the shoulder of the main shaft and is held in this position by the universal joint. The outer race of the main shaft bearing is held in position by the rear motor support. If there is any play in the mainshaft, it will permit the synchronizer to change its location with respect to the second speed mainshaft gear and cause transmission failure.

Oil and Dust Shields

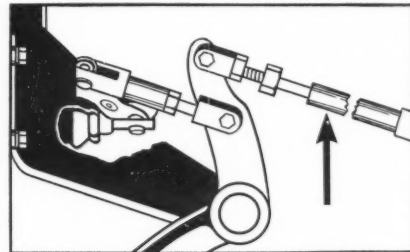
To eliminate a comeback when installing new oil seals in 1942 Plymouth cars, it is advisable that the



leather be soft and pliable and in good condition. New seals should be soaked in warm oil (not hot) for about 30 minutes and the leather worked by rolling the seal as illustrated. Where the leather makes contact, make sure that the part or parts are smooth as a rough surface will cause a rapid wear of the seal and result in an oil leak.

Brakes

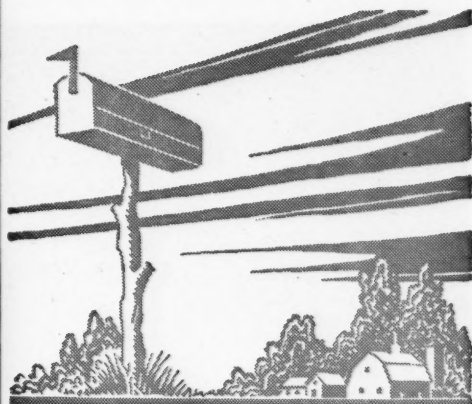
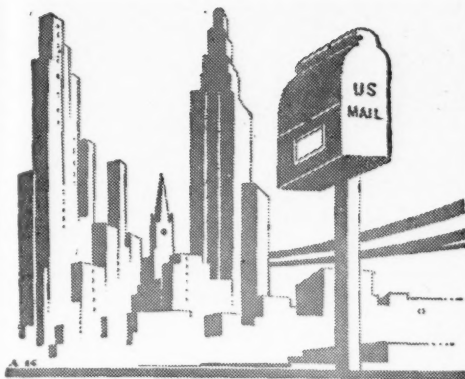
On the 1942 Hudson, the mechanical brakes on the rear wheels will operate if the hydraulic system for any reason becomes inoperative. To prevent the mechanical brakes from oper-



ating during the normal operation of the hydraulic brakes, a clearance of 1 1/4 in. should be maintained between rear face of the pedal push rod adjustable end nut and the front face of the pedal push rod as illustrated. This adjustment should be checked on every car whenever brake work or inspection is done.

Carburetor Float

If after servicing the carburetor on a 1942 series Nash car, the carburetor still loads up, it is advisable to check the float level. Trouble may be due to wear on the lip of the float lever, which will cause the float to raise. This can be reset by bending the lip of the float lever down to raise the level and bending up to lower the level. The float setting on the 600 Series is 5/64 in. below top surface of carburetor body casting to top of float. On the 42-60 Series, 3/8 in. from edge of cover casting to upper seam in float when inverted. On the 42-80 Series, 3/16 in., measured between top of float and finished surface of cover casting when inverted.



Bill Toboldt, Editor, Motor Age

THE READERS'

CLEARING HOUSE

of Servicemen's Queries

QUICK START

We are having trouble with a 1932 Cadillac V-12. One side of the motor will start off faster than the other and it is gradually getting worse, so that one side doesn't have any power. Valves were ground but this did not help. Could you also give me some information regarding valve and ignition timing on this model?—Marson's Garage, Molalla, Ore.

WITH reference to the trouble you are experiencing with your 1932 Cadillac V-12, I would suggest that you install new breaker points, making sure that these are properly synchronized on a distributor test stand. Also check both ignition coils and condensers.

In regards to checking the ignition and valve timing, this was given in the Chilton Manual as follows:

Tappet Clearance: Due to the automatic adjusters, tappets normally operate with zero clearance. Whenever wear or tampering of the automatic silencer mechanism has occurred, it will be necessary to bring the eccentric cam of each rocker back to the initial adjustment, so that it can continue to function automatically. To adjust cam, use Cadillac

tool No. 109624-T, inserted in the upper hole of the silencer plunger to release same. Then, with engine running, adjust each rocker tappet screw to provide .030 in. clearance between rocker and valve stem.

Valve Timing: With tappets set to zero clearance, inlet opens at T. C.

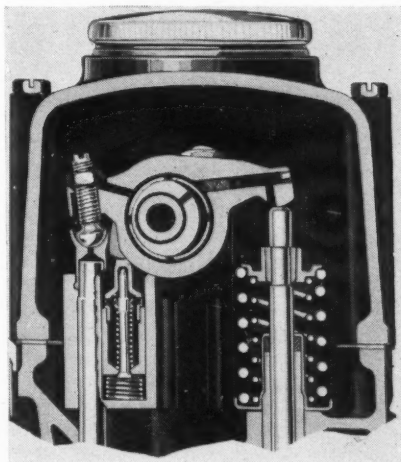
Ignition Timing: Full automatic type. With the carbon-brush end of rotor aligned with distributor-cap terminal marked No. 1, spark occurs 15 degrees, or $4\frac{1}{2}$ to 5 flywheel teeth

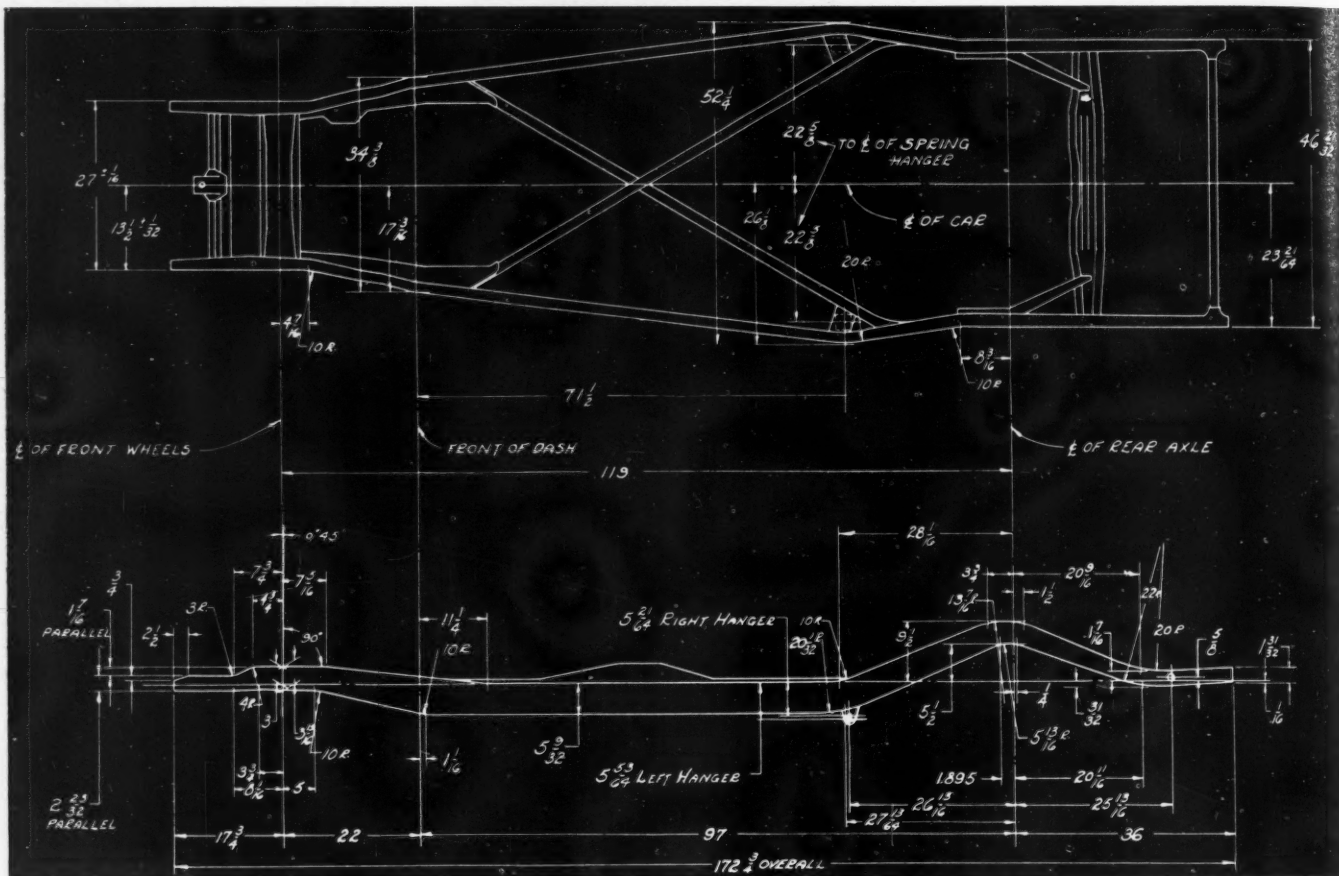
before T. C., or when the flywheel mark "IG/A" lines up with pointer. Rotor is double ended and fires at alternate ends. (See distributor cap for wiring order.) Movable breaker points open 75 degrees or $23\frac{1}{4}$ flywheel teeth after stationary points. Unequal firing intervals 75 and 45 degrees.

NOISY TAPPET

I am having trouble with a 1938 Ford 85 hp. I ground the valves and set them at .010 in. The Chilton Flat Rate and Service Manual states that they should be set to .013 in. cold. The way they are set now they are awfully noisy. Wouldn't you think that having them set closer would tend to eliminate this noise? It seems that the closer they are, the noisier they become. Could you give me any advice as to whether the noise could be done away with?—Fawcett Service Station, McKeesport, Pa.

I AM inclined to think you slipped up somewhere in measuring the tappet clearance on the 1938 Ford if you find that the tappets are noisy at .010 in. clearance. Ford valves are quiet at .013 in. and certainly should





Frame Diagram—1942 Studebaker Commander

not be noisy when the clearance is decreased.

I would, therefore, say that you slipped up in measuring the clearance, or the keys holding the valve guides in place have slipped, which results in a noise similar to a loud tappet.

I suggest that you check the clearance of the tappets once more, and also the keepers in the valve guide. If your clearance at the tappet is actually .010 in., I am quite convinced that the noise is coming from some other part.

MORE REGULATION

I have a Dodge 1939 with a three-brush generator and full three unit voltage control regulator. I wanted to know if it is advisable to connect the field lead to the main brush and do away with the third brush regulation?—Lowrence Colbrese, Glendive, Mont.

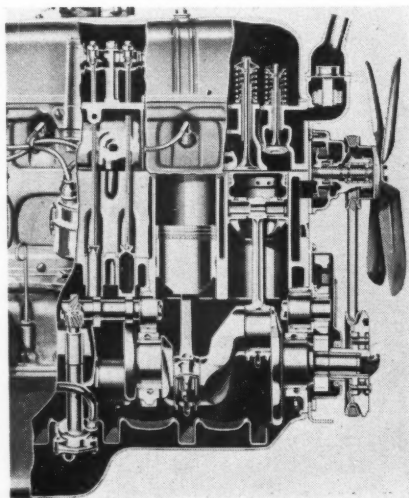
BY connecting the field lead of a three-brush generator to the main brush, thereby eliminating the third brush regulation, you will get increased output from the generator. However, you will also throw the work of all the regulation onto the voltage and current regulator, causing the points to wear out sooner.

If you are getting sufficient output

from the generator when it is operating as a three-brush unit, I would suggest that you leave it as such. On the other hand, if you need increased output, I would advise connecting it as you suggested.

PLUG TROUBLE

In reading the July issue of MOTOR AGE, I see that Calvin Russell is having the same trouble as I am with grabbing brakes. I have a 1942 model Chevrolet which has the same brake as the 1941 model. If you have any cure, I would like to know it?



Also, this 1942 model is hard on the spark plugs, especially at No. 1 cylinder. I can't get it to stand up over 2,000 miles. The car has 15,000 miles on it, and doesn't use any oil, but the plug is black when I take it out. I have installed three different makes of plugs and also put a valve silencer on the exhaust and that didn't do any good. It has good compression (120-125 lb on five of the cylinders) but on No. 1 it ranges from 130-135 lb. Could you please advise me on this trouble? —Bill Davie, Tacoma, Wash.

THE trouble you are having with the 1942 Chevrolet brakes can generally be cured by freeing up any frozen pistons or other parts in the system.

It is my guess that your sparkplug trouble is due to a plug that has too cold a heat range. Since the plug is black upon removal, this is an indication of the above condition. I would try a hotter running plug. Also check to make sure that you don't have a blown intake-manifold gasket at the front end of the manifold.

ROUGH IDLE

We are having difficulty with a 1941 Buick Century Series 60, mileage 25,638, in that we are unable to get a smooth idle or good performance at from 10 to 15 m.p.h. road speed, al-

though car seems to operate satisfactorily at higher speeds.

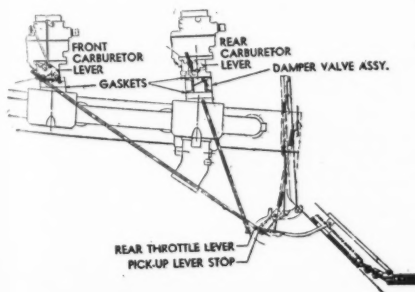
Owner says car was O.K. until about 12,000 miles, when due to loss of anti-freeze it was severely overheated. Attempting to correct the trouble, we have refaced and resealed valves, installed new rings, adjusted bearings, cleaned and adjusted carburetors, checked manifolds and heat dampers, checked and adjusted distributor on stroboscope, reset ignition timing to 4 degrees advance. We have tried different heat ranges in Auto-Lite and AC spark plugs and gaps of .025 in., .028 in., and .030 in. We now have AC No. 46 plugs set at .028 in., but cannot notice any improvement. This car is equipped with a regular Buick radio coil which checks O.K.

The car has been driven about 1200 miles since ring and valve job, and compression pressure at cranking speed is 126 lb. on all cylinders. We are using the thicker head and manifold gaskets and have cut about 1/4 inch from the long end of the anti-bubbler rods in the carburetor idle passages on the advice of Buick service. The car is equipped with Stromberg carburetors. Vacuum gage reading is unsteady at from 16 to 19 in. We have disconnected the vacuum booster line and the spark advance line to check for leaks, but have found none. Any advice you can give will be sincerely appreciated.—E. J. Ringle, Ringle Auto Service, Edgar, Wis.

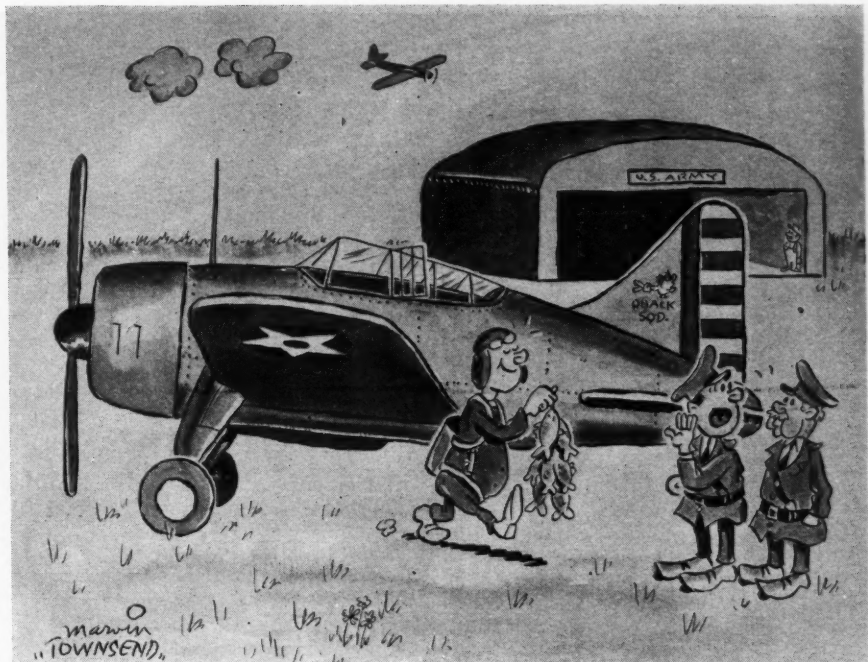
I AM inclined to think that the trouble you are having with the 1941 Buick Century 60 is carburetion.

I would suggest that you carefully balance the carburetors. Also check the windshield wiper line all the way from the vacuum pump to the wipers.

To check the throttle rod adjustment, it is advisable first to check the floor mat as it must be in place; otherwise it may prevent full travel by the accelerator pedal. If the carburetor is not cold enough to cause the de-loader cam to contact the carburetor lever as the throttle is opened, hold the de-loader cam in contact with the carburetor. Then adjust the throttle rod so that the carburetor (front carburetor on compound-carburetion equipped motors) lever is in full open position when the accelerator pedal is depressed to the floor mat. The de-loader must be in operation to exert normal load on the throttle rod



SEPTEMBER, 1942



"Now listen to him pull that old gag about catching flying fish!"

when the accelerator pedal is depressed. On compound-carburetor motors, adjust the accelerator rod to the rear carburetor lever in open position when the front carburetor lever is in open position (de-loader working) and the pedal is fully depressed.

The idle adjustment should be made when the motor is warm and set at approximately 7 to 8 m.p.h. in high gear. With the ignition switch turned off, back off both throttle adjusting screws until the throttles are fully closed. The adjusting screws should just be touching the thin section of the cold idle cam on the front carburetor and the throttle body on the rear carburetor when the throttle is fully closed. Then turn each throttle adjusting screw three quarters of a turn clockwise to open each throttle the same amount. Turn the idle mixture adjusting screw in on both carburetors until closed position can be felt. Do not force the screws on the seat, then open each screw one turn. Start the motor and, if additional adjustment is needed, turn each throttle adjusting screw and each idle mixture screw the same amount in the desired direction, one eighth inch at a time.

CLUTCH CHATTER

A 1939 Chevrolet came into our shop with a clutch chatter in low and reverse. We dismantled the clutch and found a rough pressure plate. The disc looked like new, the lining being worn just in the high spots. However, this disc seemed to have a lot of "dish" to it, which I thought was more than ordinary.

We installed new molded lining in place of the woven lining it had, and put in a new pressure plate. This

seemed to cure the job for several days, but it was chattering again in a week's time.

This car had a new frame installed about 6 or 8 months ago and other work as a result of a wreck.

There was a 1940 Chevrolet in for some work a few days ago and I noticed that it did the same thing.

Is there anything else that can cause this condition? The motor mountings are OK—we replaced one. I thought that there may have been a new disc put in when the new frame was installed, and perhaps it was not for this model.

Thanks for any help you can give. Arthur Zeis, Florence Garage, Florence, Ky.

THERE are several things you can do to help eliminate the clutch chatter you have in the 1939 Chevrolet.

The "dish" is necessary on this clutch to overcome the tendency to chatter and to give smoother engagement.

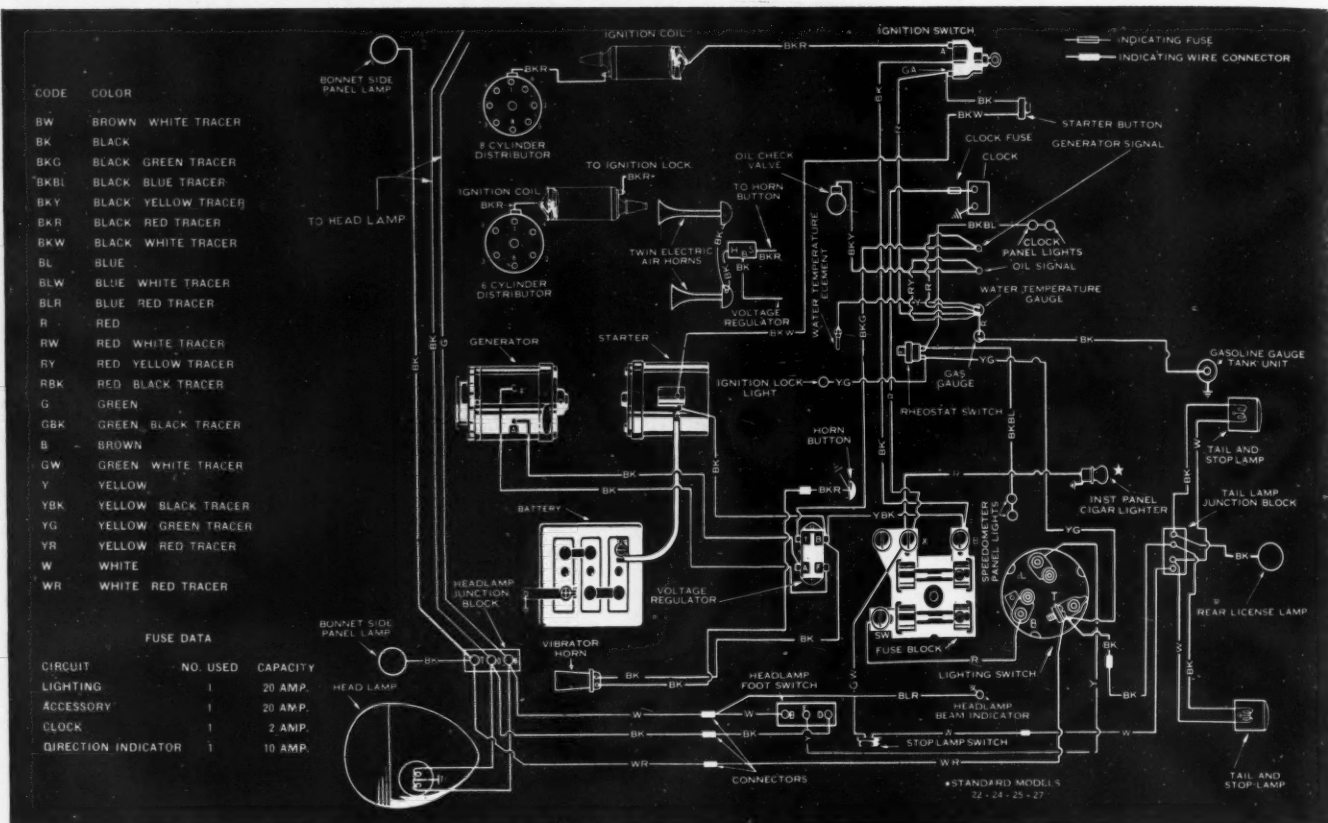
Check the pilot bearing in the end of the crankshaft and if replacement is necessary, install a new one.

Make sure that the clutch-shaft retainer is bolted tight to the case. Also tighten the bolt holding the universal joint to the transmission mainshaft.

FROZEN BRAKE PISTON

In the July issue of MOTOR AGE, Calvin Russell, of Bellefonte, Pa., seems to be having trouble with 1941 Chevrolet brakes. We have been having the same trouble here for about a year. In your answer, you suggested frozen parts, and that's exactly what we have found with each job.

In each case, if the car pulled to



Wiring Diagram—1942 Hudson

the right, I found the left wheel-cylinder pistons stuck in the cylinder. Apparently the cups and pistons were installed dry and the cylinder rusted. A light honing with a fine stone and lubricating the cylinder cups and piston with brake fluid cured every job. I have had some of them so bad that, with steady pressure on the brake pedal, you could feel each cylinder break loose and the pedal would go down about one-quarter of an inch as each brake would contact the drum. —W. L. Withrow, Springfield, Ill.

NOISY DAMPER

I have a customer with a 4010 Lafayette (mileage 16,000) on which the vibration damper was noisy. Oiling it every 10 miles or so would help. The customer ordered me to install a new assembly, which helped for a few trips, but the noise came back. Would dressing the hub of the balancer down be of any help?

A 1935 Plymouth water pump squeals when starting out, the noise lasting for about two miles. The pump has been overhauled by a Plymouth Service Station twice without any change. It doesn't do it when there is anti-freeze in the system. There is a rust preventative in the radiator. Any information on the above troubles will be appreciated.—Srnka's Auto Repair, Algoma, Wis.

ON your Model 4010 Lafayette, I hardly think the noise you are ex-

periencing is coming from the vibration damper. I am more inclined to think that you have a defective fan pulley or fan belt which is causing the noise. It is also possible that the noise is coming from your water pump. I would, therefore, suggest that you try driving the car without the fan belt for a short distance to see if the noise is eliminated. Naturally, if it does stop, the trouble is not in the vibration damper, but in some other part.

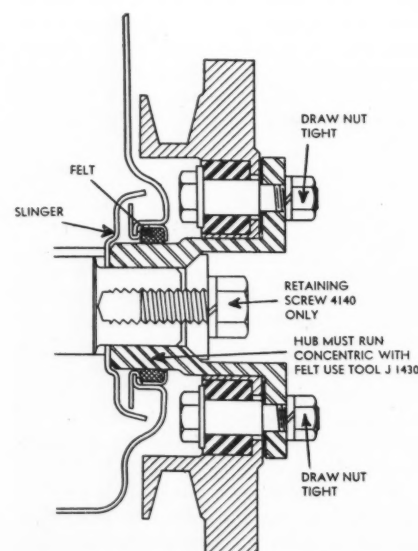
On your 1935 Plymouth, if the pump is in good condition and the squeal persists, I would suggest that

you put a lump of soft soap about the size of an egg in the cooling system and this will act as a lubricant and overcome the noise. A tablespoonful of glycerin placed in the system will have the same effect.

NEW ECONOMIZER

I am having some trouble with a 1939 Ford 85. The difficulty is poor gasoline mileage. Over a period of 1,500 miles, the owner says that he only got 15 m.p.g. and that after a carbon-and-valve and ring job, not forgetting a complete tune-up. The owner says that he never drove over 40 m.p.h. and that a good portion of the distance is level-road driving with little traffic. I know the owner well so that you can accept his statements as true.

So far I have carefully checked the distributor and ignition timing and find it correct. Incidentally, the points were set on an ignition test stand. The advance adjustment is all the way up and the vacuum setting is backed up nearly all the way, so the spark is advanced as far as it will go. Carburetor was cleaned several times and the float level is 1.353 in. measured with the float and cover assembly held upside down. Valve tappets are .010 in. Compression ranges from 110 to 115 lb. in each cylinder. Just to be sure there were no sticking valves, I ran several quarts of valve oil through the carburetor. The vacuum gage gives an



eratic reading and the owner says the engine often stops when coming up to a traffic light. What suggestion have you as to what might be causing the trouble?—New Jersey Subscriber.

JUDGING by the description you have given of the work, it would seem that you have done a pretty complete job in trying to locate the trouble. That is, complete with the exception of the carburetor. Cleaning out the various passages in many cases is all that is necessary.

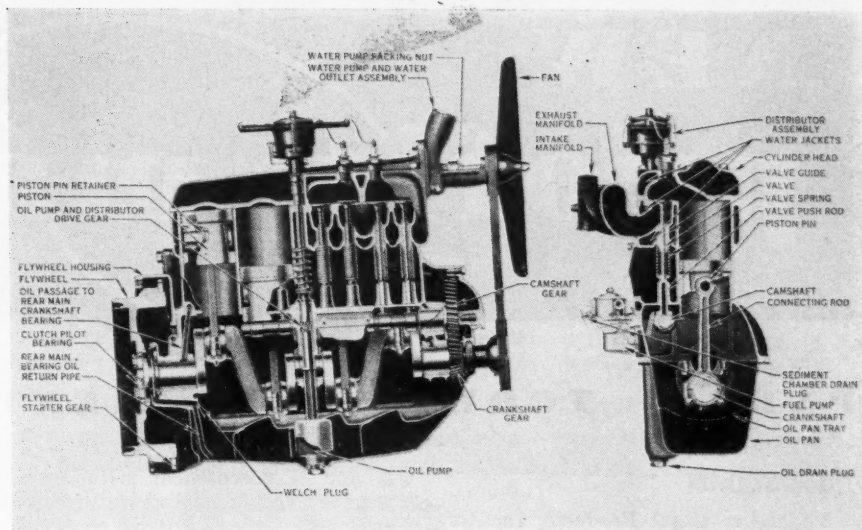
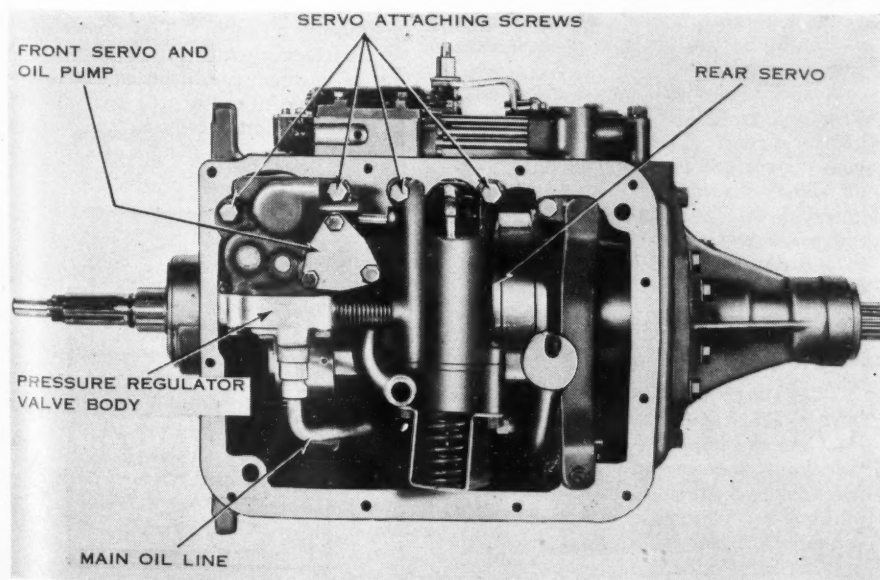
However, that does not prove the economizer is O.K., that the float needle valve does not leak, that power jet needle valve is tight, or that the ball check at the bottom of the accelerating pump well does not leak. However, in this case, I am most inclined to believe that your trouble is in the economizer. I would suggest that you replace the economizer valve or, better yet, install a completely rebuilt carburetor.

WON'T SHIFT

I have a customer with a 1941 Oldsmobile 8 Hydromatic drive that will not shift from low to second speed when the motor is cold until the owner has driven the car ten blocks or further, and then he has to race the motor considerably to make it shift.

I would also like to have the instructions you can give me on the adjustment of linkage and bands.—H. A. Severson, Auto Park Garage, Seattle, Wash.

I HAVE mailed you a copy of an article on servicing the Olds Hydromatic transmission which appeared some time ago in MOTOR AGE. From the description you have given of your trouble, I am inclined to think it is either in the adjustment of the servo bands, or that possibly somebody has used the incorrect type of fluid in the transmission.



FORD POPS BACK

I would like to know if you could help me with a little trouble I am having with my car, a Ford 1930 Model A. I rebuilt the motor at 72,000 miles. The cylinders were honed, new rings, pistons, valves, valve guides, valve springs, and push rods were installed, mains repoured, distributor rebuilt including new points and condenser. New plugs have been installed as well as a new Zenith carburetor.

The car now has 94,000 miles on it, and the trouble that I am having is that every time I remove my foot from the gas pedal, regardless of speed, I hear popping sound from the muffler. If I retard the spark, it gets louder, and sounds like backfiring. It runs swell when giving gas at any speed. Another thing, at slow speed, or when starting to move, the gas seems to hesitate, and then takes hold.

—Steve Bukas, Jr., Warren, O.

CONSIDERING all the work you have done on that Model A Ford, it is rather difficult to see why you

should have the trouble you describe. However, I would certainly make a point of checking the camshaft gears for play, but, more particularly, I would check the distributor shaft.

As you know, this distributor shaft is of the tongue-and-groove type and after a while wear takes place and it is necessary to replace the shaft.

I think it would also pay to run some top-cylinder oil through the carburetor just to make sure you do not have any sticking valves. Also check the gasket separating the upper and lower portions of the carburetor.

RADIO NOISE

An owner of a 1942 Buick car, equipped with a radio, drove into the shop complaining about static noises in his radio. He had it to several shops which installed suppressors and also static eliminators at the wheels. Is there anything I can do, or should I send the owner to a radio specialist? —West Chester, Pa., Subscriber.

UNFORTUNATELY the description you gave of the trouble and the steps you have taken in order to eliminate it are too brief to help me very much. However, there is a possibility that your trouble is caused by the condenser on the generator. On 1942 Buick cars, this condenser should always be attached to the generator at the clamp bolt that holds the generator wire in place and connected to the armature terminal. If it is connected to the field terminal, it will cause a pitting of the voltage regulator points and the excess arcing at those points will cause the static noises your consumer complains of. The distributor suppressor should always be installed in the center of the distributor and not in the coil end. In some instances it is also necessary to install a condenser in the top of the coil, making sure that a good electrical connection is made by soldering.

NEW profit makers

PARTS TOOLS EQUIPMENT ACCESSORIES

Tool Stands

The Lyon Metal Products, Inc., of Aurora, Ill., has announced the addition of new tool stands to their line of equipment.

These tool stands are useful around



production machines and tool rooms as toters-up to the job. The stands can be purchased with one, two or three-drawer inserts, which slide easily and can be locked to guard against theft of important tools.

K and W Metallic Seal

K and W Metallic Seal for repairing cracked cylinder blocks and cylinder heads is a product of the Kerkling & Co., Inc., Bloomington, Ind. The Metallic Seal is used in boiling water, circulated through the motor block, and is described as a scientific self-sealing liquid that requires only the heat of boiling circulating water to make a permanent repair. The manufacturers say to use K and W Metallic Seal first while the motor is still assembled and, if the crack is small, it will be permanently repaired in 10 to 15 minutes. On larger cracks, the K and W mechanical method of metallic seal is to be used.

The manufacturers are conducting school in Bloomington, Ind., to teach motor-block repairing to service managers and master mechanics. The

K and W mechanical method of repairing cracked castings utilizes various operations depending on the type of casting, the location of the break. Briefly a simple crack is first anchored with anchor screws and is then peened to close the crack. Afterwards it is sealed with metallic sealer. Special tools, such as pneumatic peening, hammers, speeds the work. According to the sponsors of the school, any cylinder block, regardless of the type of crack or break, can be repaired by their method.

Bomb-Quench

The O. H. Adams Co., 2018 E. Thomas Ave., Milwaukee, Wis., has developed an incendiary-bomb extinguisher called "Bomb-Quench."

The company claims that a magnesium bomb fire can be extinguished in 42 seconds by sprinkling the powder from a 5-ft. tube on the fire. The powder forms a chemical vapor within the insulating crust which dispels any air that may have been present and extinguishes the burning metal.

Yankee Carry-All Kit

A new kit has been designed by the Yankee Metal Products Corp., Norwalk, Conn., for holding a sealed beam headlamp, three c.p. bulbs, three 6 c.p. bulbs and a box of standard fuses.

A special device keeps the contents firm and rigid and makes the kit vibration-proof. This kit is made of a heavy steel and is furnished in baked-on black enamel. Two reinforced holes in the bottom allow for inserting of screws so that the kit can be attached to the side wall of the cab or under the seat.

Blackout Paint

The Paint Division of the Pittsburgh Plate Glass Co., Pittsburgh, Pa., has developed a complete line of "blackout and camouflage" paints to meet the current war emergency. The paints are designed for domestic and commercial use in areas subject to possible air raids. They obscure in-

terior illumination when applied to windows, skylights and other glazed openings. The line covers paints in black, smoke gray, earth drab and neutral brick.

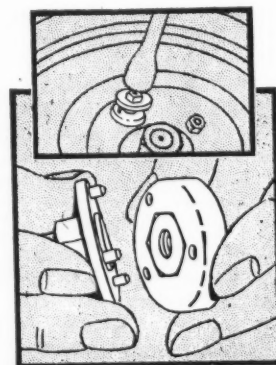
Because of the danger of glass breakage due to absorption of sun radiation by painted glass, the following recommendations are made by the manufacturer: (1) the entire pane of glass should be covered; (2) only one coat of paint should be used on the exterior; (3) a black paint gives the greatest opacity but also shows the greatest heat absorption. Whenever possible, particularly on southern exposures, more neutral colors should be used. (4) The danger of breakage is minimized when paint is applied to glass areas of 4 sq. ft. or less.

Tire and Wheel Lock

C. B. Products Co., Detroit, Mich., has designed a wheel lock to prevent theft of tires and wheels.

This package consists of four locks with a special disc, or key, with three pins that fit into the corresponding holes in the wheel nut. The lock or nut is screwed on the wheel stud by means of this special key and, because it is encircled in a metal collar, it cannot be removed with an ordinary wrench. The installation of this locking nut will not cause any out-of-balance condition in the wheel.

It will be necessary to keep the key in a convenient place in the car, as it will be the only means of removing the wheel.



DETROIT LETTER

(Continued from Page 39)

semblies to four government-built final assembly plants in the Midwest and Southwest to be operated by aircraft manufacturers. The engines were not included in this pooling plan, although several automobile manufacturers were scheduled to make aircraft engines, some for bomber installation.

The three bombers which the automotive companies undertook to build were recent types on which flight tests had not been completed. This complicated the tooling problem for the automobile engineers, because design changes were coming in so fast that they were unable to standardize on blueprints or production methods. On one bomber these changes were coming in at the rate of 500 per week. These changes were dictated by the necessity of making the planes as fast, maneuverable and well-protected as possible, so they could best Nazi and Japanese planes in combat. But this did not make it any easier for the automotive engineers.

Because the bomber parts were to be made not only in scattered plants but in widely distant communities, the preparatory work was a long and arduous process. Thousands of drawings had to be carefully prepared to assure exact fits of the subassembled sections at the central assembly plant. Thousands of workers, accustomed to working in steel where weight and surface scratches are relatively unimportant, had to learn the new technique of handling aluminum with a minimum of spoilage. New assembly lines, of types unknown either to automobile or aviation production experts, had to be devised and built. Buildings, machines and men all had to be converted from the manufacture of automobiles to the making of aircraft.

Illustrative of the problems involved was that of a huge holding fixture for part of the bomber fuselage, which was completed on a Friday night. When it was checked the following Monday morning, it was found that somehow it had warped out of shape despite the fact it was a steel structure, firmly anchored to a concrete foundation. In that week, the necessary adjustments were made and by Saturday the fixture was perfect again. But on Monday morning it again was haywire. After considerable investigation it was discovered that, during the week-end, there was considerable switching of railroad cars onto a neighboring siding. The vibration from this movement was carried into the earth under the factory foundations and from them through the floor into the fixture. So the fixture had to be dismantled and placed on its own foundation, sunk deep into the earth and insulated from all contact with the building.

This was only one of the more perplexing problems encountered by the automotive engineers turned aircraft experts.

What with design changes and the problems of production techniques and plant layouts, it was a little over 12 months from the time the plan was first broached that the first airframe subassemblies were delivered from the automotive industry to the final assembly plants. In the case of the two other bomber types, it was 18 months from time of Gen. Knudsen's proposal to the industry and the first

shipments of finished bomber airframes.

This may not sound like fast tooling or production but, considering the complexity of the final product and the obstacles that had to be overcome, to say nothing of the design changes that were constantly being made by the Air Corps from flight experience, it was quite an accomplishment. Possibly the problem can best be comprehended by comparing it to the manufacture of a six-room house, complete with all furnishings, in six

(Continued on Page 52)

HANSEN *Blo-Vac* AIR CLEANER



**LIGHT • POWERFUL
FAST and HUSKY!**

Hansen Blo-Vac air cleaner, has no working parts, is extremely light and portable and is air operated. It is a two in one unit... a blower and a vacuum cleaner, by merely turning knurled nut it can be instantly changed to operate either way. Hansen Blo-Vac has a very high vacuum, doing a thorough job of cleaning upholstered automobile seats, ceilings, floor mats and all interiors. Ideal as a blow gun for cleaning engines, parts, etc.

There are no triggers or buttons to hold while cleaning, the unique Hansen needle valve has absolute control of the air volume at all times with no wastage of air. Hansen's nozzles and dust bag are quickly and easily attached and detached as they are connected by means of a clamp.

Hansen MFG. CO.
INDUSTRIAL Air Line EQUIPMENT
1786 EAST 27TH STREET • • • CLEVELAND, OHIO

DETROIT LETTER

(Continued from Page 51)

different factories. Under such a program each factory would have to build its part of the house to such accurate dimensions that, when the units were brought together for assembly on the lot, all the parts would have to fit exactly—down to the water, sewage, electric and telephone connections.

That is why the automotive engineers are inclined to take a "show me" attitude when Kaiser proposes

to build flying boats in shipyards within 10 months. They went through a similar experience with the aircraft industry. Volume production of airplanes, even bombers, looked fairly simple when it was considered that as many as 5000 automobiles a day came from a single automotive plant. But there were 40 years of know-how and experience behind such an achievement, while aircraft presented a new aspect of production. One automotive company already is slated to build flying boats in a Southern city, but a year will elapse between the receipt of the order and the flight of the first plane from the assembly line.



"How about loaning a couple gallons of that gas you're out of, Buddy?"

PRODUCTION FOR VICTORY

... Kellogg has accepted its responsibility to a fighting America. Currently in production are compressors and special parts and assemblies for the Army, Navy and Air Corps.

A KELLOGG-AMERICAN CERTIFICATION means Profitable Operation

for You . . . All Kellogg-American equipment must survive thorough testing — a merciless workout, far harder than any service you can give it. Kellogg takes the grief, you get long service, low upkeep and power cost, *the most you can get for your money* in shop equipment.

AIR COMPRESSORS • CAR LIFTS • CAR WASHERS • PAINT SPRAY EQUIPMENT

The manufacturer who said he could turn out 1000 planes per day might turn the trick if they were basic training planes with low-horsepower engines. But a plane designed to carry four tons of bombs and that requires 188,000 parts and 300,000 rivets presents an entirely different problem.

Kaiser has the advantage of an efficient engineering organization that knows how to get things done. He has proved that in cutting the production time on cargo ships. But a 70-ton flying boat like the Mars is somewhat different than a 10,500-ton freighter, just as a four-door sedan is dissimilar to a bomber. Flight tests on the Mars are still being conducted by the Glenn L. Martin Co., so there would be the old problem of design changes. And workers welding steel plates would have to be taught the finer technique of welding aluminum. So you can't blame the automotive engineers for being a mite skeptical. It took many months before the parts for the long-ranging B-24's, the B-25's of the type that bombed Tokyo and the B-26's that carried torpedoes with deadly effect in the Battle of Midway and the Aleutians were coming off production lines and being shipped to the assembly plants for fabrication into powerful aerial weapons.

REBUILDING SHOP

(Continued from Page 22)

was done in a desire to keep men and machines busy and to help out with national defense.

The Tucker company prides itself on the average length of service of employees in the shop as well as other departments. Of its 50 employees 15 to 20 have been with the concern over 15 years. This includes the service manager with 20 years' experience, the parts manager with 21 years', the shop foreman and one machinist with 20 years' experience. During the last depression the concern kept its entire organization together.

Automotive Electric Group to Meet Sept. 24

The Manufacturing and Distribution Divisions of the Automotive Electric Association will hold their 25th Annual fall meeting and conference on Sept. 24 and 25 at the Edgewater Beach Hotel, Chicago, Ill.

R. L. Putman, Mid-States Auto Electric Co., J. F. Sirotek, Jr., Illinois Auto Electric Co., both of Chicago, and F. E. Smith Auto Electric & Magneto Co., Atlanta, are members of the Convention Committee of which C. W. Butterfield, Service Sales Manager, Bendix Products Division, South Bend, Ind., is chairman. They have arranged a program for this year's meeting that has been streamlined in keeping with war-time conditions.

President J. A. Shank, manager of the Parts and Service Division, Electric Auto-Lite, Toledo, Ohio, will preside at the general meetings that will be held during the two days. The manufacturers and distributors will also hold separate conferences to discuss their particular activities at which C. F. Conn, Trico Products Corp., Buffalo, N. Y., and Barry Cool, Electric Equipment Co., Los Angeles, Cal., respective chairmen, will preside.

54,000 Communities Depend on Automobiles

More than 54,000 communities in the country, as compared with 48,000 10 years ago, depend entirely upon motor transport, according to the 1942 edition of "Motor Truck Facts" now being released by the Motor Truck Committee of the Automobile Manufacturers Association.

The new edition emphasizes the importance of truck transportation to war plants. For example, included in the information is the fact that of 741 war factories in Michigan, the average plant utilizes truck transportation to the extent of 65 per cent of incoming freight, and 69 per cent of outgoing freight.

The 56-page statistical booklet traces all government limitation orders affecting truck production, summarizes the government's wartime rules for motor carriers and reproduces the government suggestions for preventive maintenance to prolong the life of existing motor truck facilities.

Also covered in the publication are conclusions of the Public Road Administration in its recent study of motor truck performance and a chart prepared by the National Highway Users Conference showing state size and weight limits fixed for trucks.

Standards for Natural Synthetic Rubber Sought

Taking advantage of whatever good may be blown by the ill-wind of rubber shortage, American engineers are

devising standard classifications, specifications, and tests for both natural and synthetic rubbers, currently to conserve rubber stocks and ultimately to enable industry in general to make the widest possible use of the products.

Interest now is centered in rubber for automotive and aeronautical purposes other than tires. Initially the new rubber classifications are to be recommended to the War Production Board for promulgating in the war emergency conservation program. Later, it is believed, this work by a joint committee of the Society of

Automotive Engineers and of the American Society for Testing Materials and two subcommittees will serve to bring about the adaptation to thousands of new industrial uses of both natural and synthetic rubbers—whichever is cheaper and available.

The system of classifications, which cover 57 synthetic and 40 natural rubber compounds, is designed both to conserve rubber by enabling manufacturers to select those compounds whose properties and characteristics are known to meet the requirements of specific uses, and also to make effective use of alternative compounds.



For 32 years, McQuay-Norris has been manufacturing precision parts for motors used in passenger cars, trucks and tractors. In addition to making automotive replacement parts, we are now direct contractors to the Army and Navy and subcontractors on critical precision parts for aircraft, tanks, scout cars and trucks.

McQUAY-NORRIS MANUFACTURING CO.
Let's keep cars, trucks and tractors rolling!

"STOP WASTE with The Ring Leader!"

LEGALLY SPEAKING

A lawyer's interpretation of Federal and local court decisions of interest to repairmen, presented each month

By C. R. ROSENBERG, JR.

Favor to Customer

Some of those "free of charge" courtesies to good customers are apt at times to prove costly to the repairman who extends them.

A Vermont business man offered, or at least agreed, to store free of charge certain articles belonging to a customer. After the items had been thus stored for several years, the customer—demanded their return. At the time of this demand, the business man was unable to locate one of the items which had apparently been mislaid. Thereafter the customer sued the business man for the value of the lost item on the ground that the business man had "converted" it to his own use.

But the court refused to penalize the business man for the mislaying of the item in this free accommodation deal.

"It has been found," said the court, "that the transaction was for the sole benefit of the customer. The facts warrant no other reasonable inference. There was no solicitation of the customer by the defendant business man to leave the goods for storage. No compensation for the storage was made nor intended to be made; neither was the transaction a necessary incident to the business of the defendant in which he made a profit. Any pecuniary gain to the defendant

as a result of this storage accommodation is entirely a matter of speculation."

The customer had tried to put across the idea that, although nothing had actually been paid for the storage, the business man had really been compensated for it through other profitable business he had transacted with the customer.

But what really saved the business man from loss was the court's finding that he "used the same degree of care in storing the goods as he exercised in caring for his own property under like circumstances."

Good guide in free courtesies: care and plenty of it! (*Wetmore vs. Hooker*, 18 *Atlantic Reporter*, second series, 181).

What Are Damages?

"The term damages in its legal sense may be defined as meaning the compensation which the law will award for an injury done," says the Supreme Court of Vermont in a recent case.

"Damage" is the actual hurt to a person, property or property rights or even personal rights. "Damages" means the cash paid to the injured party by the person responsible for the hurt.

When a contract or other document

McQUAY-NORRIS

ALTINIZED

Engineered Set

PISTON RINGS

*Care for your car
...for your country*



McQUAY-



says that "the undersigned assumes liability for any damages" or even mentions the word "damages" at all, it means, as a rule, that the fellow who signs it will have to pay if any injury or other damage is done. Such clauses are sometimes found in leases and construction or repair contracts. If a repairman contracts to have his building painted, for example, and a passer-by is hurt by the painting contractor's falling ladder, who pays the damage for the passer-by's injury? The contract for the job may contain a "joker" clause providing that the repairman pays the damages. Not such a joke for him, though! (*In re Rushford*, 18 *Atlantic Reporter*, second series, 175).

Can't Get Money Back

If a person under some sort of pressure and without any mistake as to the facts of the situation pays money which he is not legally obligated to pay, will the law help him get the money back? Many a business man, faced with some disastrous effect on his business, yields to the demand "Pay—or else," knowing that he is not obligated to pay the money, either legally or morally.

"If a person without mistake of fact and without fraud or coercion pays a demand which is not enforceable against him, the payment is voluntary and cannot be recovered back," said a New Jersey court recently.

Much depends on the kind of "heat" used to extract the payment.

"A payment to a private person in order to avoid economic pressure seems to be a voluntary payment," the court continued. "Even though the payment is made under protest, it is still considered voluntary. Duress or coercion such as would make the

payment involuntary and the money recoverable, includes a threat of bodily harm or imprisonment, or of the detention or seizure of personal property without resort to legal proceedings. Likewise the knowledge that a government officer, if payment be not made, will take official action ruinous to the payor, where the payor cannot forestall such action by judicial process. Or the refusal of a public utility to furnish necessary service unless payment be made."

Where a payment is made by mistake, the courts usually say that the money can be gotten back if the mistake was one of fact but not if it was one of law. Even though lawyers may argue legal points for weeks, the ordinary business man isn't supposed to make any mistakes of law, and, if he does, he pays for them with his own money. (*Magna vs. Aetna*, 18 *Atlantic Reporter*, second series, 565).

Repairs to Building

A repairman operating in a leased building should make sure, when he signs or renews the lease, just who is to take care of repairs during the term of the lease.

"Ordinarily a landlord is not under any duty to make repairs to the leased premises unless such duty is assumed by the contract of leasing," said a New Jersey court in a recent case.

Meaning that the tenant is responsible for repairs unless the lease expressly provides that the landlord shall make them!

This involves not only the cost of making the repairs, but also any legal liability arising out of the failure to make them when needed. If a

(Continued on Page 56)

HERE'S HOW!

There's no excuse for sloppy ring jobs that waste time, parts and labor. Use only McQuay-Norris Aluminized Engineered Set Piston Rings and get the job done right the first time! That's what smart repairmen and fleet owners are doing everywhere. These famous rings are specifically engineered for all cars and trucks. Start *stopping waste* today and save valuable time, parts and labor with Engineered Sets!



McQUAY-NORRIS MANUFACTURING CO.
Piston Ring Headquarters

LEGALLY SPEAKING

(Continued from Page 55)

customer is hurt by reason of a broken step or other defect which has not been repaired, the legal and financial liability for the injury is the tenant's if he has the responsibility of making the repairs. But the landlord will have to pay for the customer's injury if he has assumed the obligation of making the repairs and has been notified by the tenant that repairs are needed.

Even where the landlord is obli-

gated to make the repairs, he has an "out" if the tenant has failed to let him know that the repairs are needed.

"I can't be expected to make repairs when I have had no notice that any repairs are required," the landlord can say very plausibly—and leave the tenant repairman holding the "bag" of legal and financial responsibility for customers' injuries caused by the unrepaired defect. Where the landlord has agreed in the lease to make repairs, the tenant repairman should notify him immediately when the need of repairs is discovered. (*Grujan vs. Shore*, 18 *Atlantic Reporter*, second series, 19).

What Partnership Means

Here's a none too gentle hint from the Court of Chancery of New Jersey as to what a partner can do to his associates in the partnership:

"As a general rule each partner is, by virtue of the partnership relation, authorized to act as the general agent for his co-partners in all matters coming within the scope of the business of the firm. All the partners are responsible for the act of one of their number as agent, even though he acts for some secret purpose of his own and not really for the benefit of the firm. Where one partner, by fraudulent promises made in a transaction within the scope of the partnership business, obtains money from a third person and misappropriates it, the other partners are liable."

Incorporation of the business is one effective way of dodging partnership "headaches." (*Rouse vs. Pollard*, 18 *Atlantic Reporter*, second series 5.)

All or Nothing

A repairman is induced through fraud to enter into a contract. Of course he does not know about the fraud at the time he signs the contract, but later he discovers it. Still later, he claims certain benefits to which he is entitled under the contract.

May he thereafter repudiate the contract because of the fraud?

"The principle here to be applied," says the Court of Appeals of Tennessee, "is that one claiming under a fraudulent instrument after knowledge of the fraud adopts the fraud and becomes bound by it."

Similarly, the courts sometimes say that one who accepts the benefits or advantages of a transaction must also accept the disadvantages. It's a case of taking the deal as a whole or not at all. (*Brown vs. McCulloch*, 144 *Southwestern Reporter*, second series, 1.)

Meaning of Contract

Courts are too dignified to say "A contract means what it says and not what you'd like it to say, and once you sign it, you're stuck with it." They try hard and often to put that idea across, nevertheless. For instance, here's this pronouncement by the Supreme Court of Vermont:

"To give force or effect to the defendant's contention in this case is contrary to the clearly expressed intention of the parties as set forth in the agreement and requires reading into the contract something foreign to it. To so limit the plaintiff's rights would be to give a meaning to the language used in the agreement of which it is not fairly capable and to substitute another and different contract. This is never permissible." (*Kerr and Elliott vs. Green*, 18 *Atlantic Reporter*, second series, 164.)

DON'T LET ANY RADIATOR PROTECTION STORY BE

Too Little or Too Late!

KEEP 'EM SAFE with an



FREEZETESTER

No. 546-T FREEZETESTER
 Complete with
PROTECTO-GAGE GUIDE CHART
 List Price \$5.75
 Dealer's Cost Only
\$3.45

THIS tester is ideally adapted to your war-time testing needs. It's fast... accurate... simple. Will enable you to handle the difficult war-time testing problems and build customer satisfaction.

Check its features, listed at the right, and you will see why this tester quickly becomes the favorite in every station where it is put into service.

Due to the shortage of rubber, freezester stocks are limited. It is suggested, therefore, that you order from your Jobber promptly.

THE IMPERIAL BRASS MFG. COMPANY
 1217 W. Harrison Street, Chicago, Illinois



• Tests over 100 types and brands of anti-freeze. System of color bands guards against errors in reading. Revolv-a-Chart gives perfect eye alignment. Has polarized glass jar, hermetically sealed thermometer. Extremely simple—only one basic type of anti-freeze to a chart, only one thermometer. Nothing confusing. Protecto-Gage included shows at a glance added quarts needed.

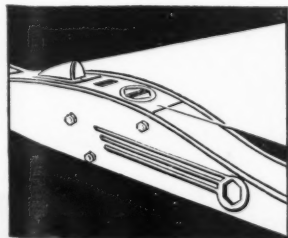
IMPERIAL
Automotive Products

READY TO GO INTO ACTION FOR YOU!



Today's fast war tempo demands that you rush out your heavy duty service and repair work. And, man — are you lucky to still be able to get the world's finest all-purpose service jack! It's a brute of a jack — built to stand the gaff of toughest going. Lifts from *low* of 3¾" to *high* of 24". Lifts all light trucks and passenger cars, with plenty of room for work on springs, brakes, wheels, etc. Fast performance in moving and parking cars, work on grease and wash racks, changing tires and other utility jobs around service stations, body shops, garages and fleet maintenance shops.

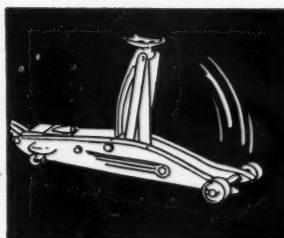
**A Product of
BLACKHAWK MFG. CO.
Department J692, Milwaukee, Wis.**



BUILT-IN SPOTLIGHT
A great convenience — light is operated by pressing button on handle grip. Real utility at night and in dark places.



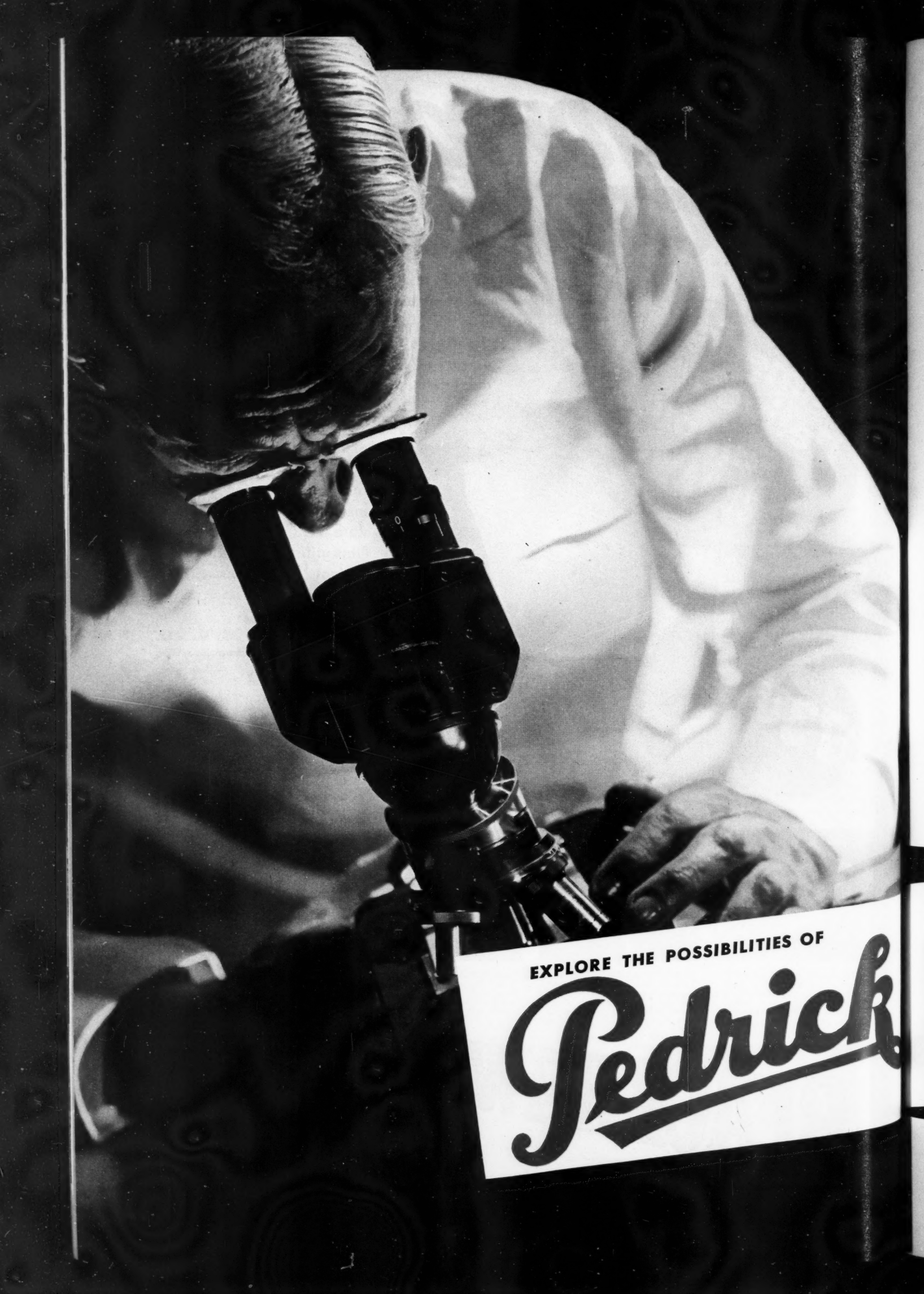
SAFETY HANDLE LOCK — Turn of removable key prevents tampering with release valve and lowering load to injure mechanic working underneath car.



LIGHTNING LIFT — Speed pump lifts saddle in 85% less time until load is contacted, when power pump lifts load easily and safely.

Limited stocks in the hands of Blackhawk Jobbers — or your jobber may still get Model S-4's from the factory. This opportunity won't last long. Hurry!





EXPLORE THE POSSIBILITIES OF

Pedrick

HOW WE GOT WAR CONTRACTS

(Continued from Page 25)

Look into the extraordinary performance and economy which Pedrick Compensating Engineered Sets of piston rings deliver to all kinds of engines.

Examine the new possibilities to help in the War-effort. There is a Pedrick "E" Set designed to restore full power and give high fuel and oil economy to any engine . . . whether it's badly worn, rebored or re-sleeved. And your Pedrick jobber has over 250 different "E" Sets which make it possible for you to give this economical performance to any car, truck, bus, or tractor for extra thousands of miles.

Focus attention on the liberal ring-and-labor guarantee against oil pumping which backs every Pedrick Engineered Set.

Enlarge your knowledge by using the new Pedrick Service Manuals. Ask your Pedrick jobber, or write us.

in business for the duration. If other war work materializes, he'll gladly devote more of his 23,000 square feet of space to the work.

The man responsible for the plant is Cox, whose title now is not sales manager but superintendent of the machine shop. Assisting Cox is John Archer, purchasing agent and detail man, whose chief concern now is material, priorities and the maze of red tape.

Bill mentioned he and Cox had been out practically all that day on bids for new work and contacting various Ordnance, WPB and OPA officials. Perhaps the result of this day's work contained experiences that would be of vital interest to other dealers. We started to ask questions.

Eck Cox took over where Bill left off, answering the following questions:

1. What kind of work would be easiest to obtain for the average dealer?
2. What basic equipment would be necessary?
3. How would the dealer get it?
4. With a scarcity of skilled labor, how would he go about hiring competent workmen?
5. What kind of supervision is basically required?
6. Where could he get help on some tough technical or mechanical problem?
7. Had his own shop had much spoilage or rejections?
8. Did he have any difficulty in obtaining materials?
9. How did he estimate the selling price of his products?
10. Are any special cost or production records necessary?
11. Did he really believe that the possible profit would justify the cash

investment, headaches and hard work required?

12. Did he plan to continue servicing automobiles along with the war-production effort?

"Well, let's take the first question," said Eck. "First should come the dealer's natural inclination. There's a dealer about 60 miles from here who used to be in the textile business. It was easiest and most natural for him to look for something along that line. He bought a number of sewing machines and other necessary equipment and obtained a direct Army contract for small tents.

"Next point to take into consideration is equipment on hand. Incidentally, this takes care, partly, of the next question. You see, if a dealer did much body work, he would have some welding equipment on hand. That would help him to get certain kinds of work. There's a dealer in north Jersey that has an unusually fine paint shop—a number of sprayers, a large bake oven with overheat hoists, etc. I don't know whether he has any war contracts as yet but, from my contacts so far; I know he could get lots of work to keep that equipment busy.

"In general, I would say that the easiest kind of work an automobile dealer can get would be along mechanical and machine-shop lines. Foundries all over the country are working overtime. Everything that comes out of a foundry has to be ground or turned to final size. They may require a lot of machine work before they can be used. Milling machines, lathes and drill presses are needed for this work.

"A good idea of the average run of work being farmed out to small shops can be obtained at the numerous field

(Continued on Page 62)

PISTON RINGS

WILKENING MANUFACTURING COMPANY,
PHILADELPHIA. In Canada: Wilkening Manufacturing Company (Canada) Ltd., Toronto.

Buy U.S. War Bonds and Stamps

SEPTEMBER, 1942

"Suppose we can tell her we're junking this yet?"



When writing to advertisers please mention Motor Age



Sabotage!

You don't have to be a genius to see what's happening in this picture. It's sabotage, pure and simple.

But all sabotage isn't so obvious . . . Nor is all sabotage the work of Axis agents.

Drivers of cars or trucks who are careless, neglectful, indifferent . . . who speed along the highways . . . who drive on under-inflated tires sabotage Uncle Sam's supply and transportation lines, too.



This sabotage must stop!

Help stop it by telling every customer to:

1. **STAY UNDER FORTY.**
2. **FOLLOW COLLIER'S PREVENTIVE SERVICE CAMPAIGN—to keep his car or trucks fit and rolling.**

Don't take this job lightly. It's no laughing matter. It's deadly serious business.

It's a real war assignment for every man in the automotive industry.

SINCE 1939 . . .

Collier's has been preaching the gospel of Car Conservation through Preventive Service.

P. S. is good business for car owners.

P. S. is good business for dealers.

P. S. is vital for VICTORY.

WAR CONTRACTS

(Continued from Page 59)

offices maintained by the WPB. There they have numerous parts on display.

"A great variety of work can be handled on the basic equipment I mentioned. Numerous attachments are available to handle a great variety of work. Take the drill press. It can be converted into a tapping machine, or, with proper jigs and fixtures, it can be used for surface grinding and light milling operations.

"Your question as to how to get this equipment is difficult. Early in the

game we bought some new lathes. Then came priority. For months I've been trying to get additional equipment and still haven't reached first base. A lot of our equipment was purchased second-hand and rebuilt. We canvassed every possible source, including junk yards and pawn shops. Through the "For Sale" columns of the newspapers we got one good buy.

"There's an amazing amount of good equipment in basements and garages of private homes that we'd like to pick up. Some of this stuff belongs to young fellows that have been inducted into the Army.

"Skilled labor is just as scarce. But

come over here and meet Jack Oatman, the man who takes care of that department."

Oatman has been with Bill Jones for over 20 years. He was a machinist by trade but came to learn automobile servicing as well as to operate the lathe and other machines if and when the need arose.

"Jack is foreman of this shop," continued Eck after he had introduced us. "He's trained all our men, except those we hired outside.

"The task of instructing is not too difficult if a man has any natural aptitude. The first thing we do is to teach the man how to use simple tools and how to use a micrometer. Then we start them off on rough cuts, which are passed on to other men to finish. With this system in operation we've had absolutely no spoilage and no rejections.

"If a shop should run into difficulties beyond its experience or understanding, it should consult the customer's plant manager, superintendent, chief engineer or chief draftsman. We have found these men most willing to advise and explain. We were preparing some bids, some time ago, from a set of blue prints. At one point we couldn't understand certain design features. We asked the customer about it. His chief engineer discovered a serious fault in design that slipped by everybody in the rush.

"So far we've experienced no difficulties in obtaining raw materials. Since most of our work is subcontracted, the material is furnished by our customers. In cases where we had to buy material, our customer was able to assign his priority number to us.

"There's nothing unusual about our methods of estimating costs. We have a rate set on each machine. That rate is based on the operator's rate, plus the usual pro rata overhead and depreciation. Just simple cost-accounting practice. The real estimating comes in on calculating production time. This must be pretty nearly perfect or we stand to lose—either the profit on the job or the job itself if our estimate is too high.

"Experience is the best and safest yardstick for calculating production time. Where we're not dead certain as to the production time, we may ask for the time and opportunity to make a sample. We've had no difficulty along this line.

"Often a rate is given with a job. They'll say, 'We'll pay so much apiece for these.' Of course, you can take it or leave it. We've found pre-set rates to be very satisfactory."

"About profits," said Bill, "I wouldn't care if I didn't make a red cent. I'm in this for the principle of the thing, but we're doing fine.

"Not only are we doing our bit, but we're preserving our organization and staying in business. This means that as long as there are any automobiles on the streets, we'll be in a position to render service.

(Continued on Page 64)

Choose a work-bench to fit the work—Just as you would a tool



HALLOWELL
SHOP EQUIPMENT

Fig. 928

Drawer is Extra,
Patd. & Pats.
Pend.

A work bench should be chosen to fit the work. It should provide for maximum productivity by being of a convenient height, width and length.

"Hallowell" Benches alone come in 5 leg heights as well as in varied widths and lengths. Strength and rigidity are also of great importance. "Hallowell" Benches stay firm and rigid even without the bother and expense of bolting to the floor.

There are over 1300 bench combinations available in the "Hallowell" line to choose from. Tops can be of smooth laminated wood, Masonite or, if advantageous, of steel.

Drawers, cabinet units and shelves can be provided to meet your specific needs.

This Work-Bench "Travels to the Job"

Here is a "Hallowell" Bench, ideal for service shop use. Move it from job to job and save time and steps. Casters on two legs allow it to be pushed around like a wheelbarrow. Handles fold away when not in use.



Fig. 992 Drawer is Extra,
Patd. and Pats. Pend.

Ask for a copy of the "Hallowell" Shop Equipment Catalog. It shows many of the other styles of benches available.

STANDARD PRESSED STEEL CO.

JENKINTOWN, PENNA. BOX 561

— BRANCHES —

BOSTON • DETROIT • INDIANAPOLIS • CHICAGO • ST. LOUIS • SAN FRANCISCO



SAVE A CAR...

gain a Customer

Every mile—every day—you add to the life of a bus, truck or passenger car, helps meet our Nation's critical transportation problem. And now that most people can't get a new car, this service is more needed and appreciated than ever before. The best guarantee of "like-new" performance you can give on these jobs is the combination of service men with the "know-how," plus original factory parts. More than half the car makers in America use Auto-Lite units as standard equipment. Make the most of Auto-Lite's contribution to Auto Life and gain loyal customers for your business.

THE ELECTRIC AUTO-LITE COMPANY
TOLEDO, OHIO SARNIA, ONTARIO



Symbol of Auto-Lite's contribution to longer car life is this hand and life-line currently being used to illustrate advertisements in Saturday Evening Post, Collier's, Time and U. S. News.

IN ITS 26 GREAT MANUFACTURING DIVISIONS, AUTO-LITE IS PRODUCING FOR AMERICA'S ARMED FORCES ON LAND, SEA AND IN THE AIR

AUTO-LITE

✓ Starting
✓ Lighting
✓ Ignition

WAR CONTRACTS

(Continued from Page 62)

"Most dealers can do as well if they make the rounds, regardless of mileage. Let them get all the equipment they can, then file a list with the local WPB offices. That's fundamental. Have them file the list in several offices if possible. We have ours on file in Philadelphia as well as in Camden and Trenton, N. J.

"To gain time, we mailed a list to prospective contractors. That also gave us an opener later for an interview.

"Tell the boys not to aim too high.

Sub-contracts are not to be sneezed at. Westinghouse, for example, has awarded sub-contracts to over 300 small plants located in 26 states. These sub-contracts total over \$32,000,000.

"I have just one more suggestion," said Eck as he pulled his wallet out of his pocket. "Dealers will find it easier to get into plants if they get themselves a pass like this." He displayed a yellow identification card, attesting to his citizenship, showing his picture, fingerprints and other descriptive features. He procured this, without charge, except for the photograph, at the Customs House in the Federal Building in Philadelphia.



"But why am I telling you—you probably know as much about using it as I do!"

Your VAN DORN Tools



Will See You Through

Now that most new tool production has been "drafted" for war service, you can be glad you chose Van Dorn Tools. For all Van Dorn Tools have the "stuff" to last "for the duration" with proper care. Ask your jobber for a Free copy of the Van Dorn Handbook—"Proper Care and Maintenance of Portable Electric Tools." It will give you many helpful hints on how to make your tools last longer and serve you better. Also, it contains a list of Van Dorn's 26 factory-owned service branches, from which you can get quick repair service and genuine factory parts, if and when you need them, without the delay of sending the tools back to the factory. The Van Dorn Electric Tool Co., 727 Joppa Rd., Towson, Md.

"Van Dorn"
(DIV. OF BLACK & DECKER MFG. CO.)
PORTABLE ELECTRIC TOOLS

Is It Kosher?

Some leaf springs are made with inserts of wood or fabric between the leaves to provide the desired ride and to prevent squeaks. When these become worn and squeaks develop, it is very difficult to eliminate the squeak.

I have found a way to do this job, and, while it may sound a little out of line with standard practice, it really does the trick.

Get a piece of bacon rind and scrape off the fat, leaving only the rind, which is about 1/16 in. thick. Cut this into strips 1/2 in. wide by about 8 in. long. Insert one of these strips between each end of each leaf. The pressure on the spring will hold the strips of bacon rind in place, and the squeaks will be gone. Philip Knapp, Ossining, N. Y.

Prizes for Salvage Ideas

In line with the current ODT program of conservation and salvage, Metallizing Engineering Co., Inc., is offering a total of \$650 in War Bonds at maturity for detailed information on the salvaging of crankshafts, brake drums, pistons, camshafts, cylinder heads and blocks, and other automotive parts with metallizing. First prize is \$250; second prize \$150; third prize \$100, and three prizes of \$50 each.

Contest is open to all users of metallizing, regardless of type or make of metallizing equipment used. Closing date for entries is Oct. 15.

Entries are to be sent to Metallizing Engineering Co., Inc., 21-07 41st Ave., Long Island City, N. Y., from whom official entry forms and full details may be obtained.

STUDEBAKER MEETS WAR CONDITIONS WITH PLANS AND ACTION!

Program for August

your ACTION

MONTHLY PROGRAMS

GO FULL THROTTLE AFTER ALL SERVICE—CARS AND TRUCKS!

THE BIG NEWS

FOR THE MOTORISTS WHO NEED THEIR CARS MOST

HOW STUDEBAKER CARS HIT BULL'S EYE FOR WAR-TIME USE

NEW CAR RATIONING

STUDEBAKER SERVICE BULLETIN

It's New! It's Tangible! It's Exclusive!

SERVICE

WAR WORK

WAR PRODUCTION WORK FOR STUDEBAKER DEALERS

USED CARS

BUYING AND SELLING used cars TODAY

Studebaker

CONFIDENTIAL SALES BULLETIN

FOR DEALERS

OPERATING CONTROLS

INFORMATION SERVICE

Don't Guess

FOR OWNERS

THE STUDEBAKER TREDO-GAGE

HOW TO WORRY Successfully ABOUT YOUR AUTOMOBILE

CAR CARE

TIRE CARE

SAVE TIRES! SAVE GAS! SAVE YOUR CAR!

FOR CONSERVATION

Are you using U.S. TRUCK CONSERVATION CORPS?

TRUCKS

SALVAGE

Have you and your mechanic signed the PLEDGE?

HELP YOUR COUNTRY KEEP 'EM ROLLIN'

Today, for the sixth time in a national emergency, Studebaker is producing war equipment on a large scale—Wright Cyclone engines for the Boeing Flying Fortress, heavy duty military trucks and other war matériel. We at Studebaker are proud of our assignments in the arming of our United States.

We are equally conscious of our wartime responsibilities on the home front. Promoting participation in national conservation projects through our field force and dealer organization is one phase of our activities. We're doing it because the salvage drive—the truck conservation program—fuel economy—tire care—car preservation—all have a direct bearing on the war effort.

Providing wartime operating information and help for car and truck owners is another of our activities which is designed to aid in the maintenance of the country's essential transportation facilities.

These activities are co-ordinated with a comprehensive program of assistance for our dealers. Since it embraces all phases of dealer operation, it is, in effect, a practical program of aid to small business. It has been developed to help the thousands of Studebaker car and truck dealers throughout the country. And these dealers are performing important and essential wartime functions.

Yes, we're meeting war conditions with plans and action at Studebaker! And so are Studebaker dealers!

STUDEBAKER—THE GREAT INDEPENDENT ★ 90TH ANNIVERSARY ★ 1852-1942

SEPTEMBER, 1942

When writing to advertisers please mention Motor Age

"Keep the Boys in Service Smiling"

Theme of Auto-Lite Offer to Dealers

Urging automotive dealers to do their part in helping keep the boys in the armed service smiling, The Electric Auto-Lite Co. is offering to all dealers a free "Traffic Builder" Kit. Containing 10 Auto-Lite "Mountain Boys" Cartoon Books, complete with envelopes for mailing to men in the service, the free kit also contains a colorful "Mountain Boys" Counter Card and a "Plug-Chek" Data Book. Any dealer can take advantage of

the free offer by sending in the post card attached to the Auto-Lite Spark Plug advertisement in this issue of *MOTOR AGE*. No postage is needed to mail the card.

Describing the free offer as a service to the automotive service industry, Auto-Lite explains in the kit how dealers can use the books and other material both to build business and to "Keep the Boys in Service Smiling." Hundreds of letters received by



Auto-Lites from soldiers sailors and marines asking for copies of a previous edition of the Auto-Lite "Mountain Boys" Cartoon Book suggested the idea of having dealers give away copies of the completely new second edition.

Here's how the plan works: Dealers hand the laugh books to their customers and suggest they mail the book, in the envelope supplied, to a relative or friend in the Army, Navy or Marines. Thus the rib-tickling Paul Webb cartoons not only build friends with customers and prospects, but help maintain the morale and spirit of our fighting forces.

In offering the kit free to all dealers, Auto-Lite aims to secure widespread distribution among soldiers, sailors and marines, and, at the same time, help dealers boost traffic during a difficult period.

The Auto-Lite "Mountain Boys" Cartoons are drawn by famous artist Paul Webb and are featured on the pages of *Esquire Magazine*. Auto-Lite Spark Plug advertising during 1942 features the antics of Luke, Jake, Gran-maw, Gran'Pappy, Uncle Rafe and the rest of Webb's be-whiskered tribe. Consumer and dealer response to the program has exceeded any advertising previously run by Auto-Lite.

'Victory' Weld Contest

To get valuable information about arc welding to factory executives in a hurry, Hobart Brothers Co. has added a "Welding Ideas for Victory" division to their regular \$200 monthly Arc Welding News Contest. Acting as a clearing house for defense welding ideas, this division will prepare and release to the general public all welding ideas judged worthwhile to our offense production.

Send your ideas for victory to "Offense Ideas"—Hobart Brothers Co., Troy, Ohio. Reports on the value of items sent in will be mailed back promptly.

Designed and Built for L-O-N-G DEPENDABILITY

Men whose keen judgment of real values led to the selection of Aro Lubricating Equipment are now—more than ever—enthusiastic in their appreciation of Aro performance and dependability.

Aro users eagerly accept the responsibility of helping motorists get maximum mileage from their new almost priceless automotive equipment—through proper lubrication. For Aro Lubricating Equipment is designed for outstanding performance, and honestly manufactured for a long life of dependable service with minimum of maintenance cost.

Ask any Aro user. Ask your Aro Jobber. Or write for full information.

THE ARO EQUIPMENT CORPORATION, Bryan, Ohio, U.S.A.

LUBRICATING EQUIPMENT

ARO
LUBRICATORS

"Now the smart money's
on FARM JOURNAL"



Big things are happening in farm-field advertising. FARM JOURNAL'S *hot!* Fast-shifting war conditions have spotlighted its 4-days-from-editor-to-reader schedule—made FARM JOURNAL the most important thing in the mailbox today. No wonder we've had 442,924 subscription orders in the

first six months of '42—215,942 of them *direct to publisher!* No wonder advertisers are flocking into our Fall issues! The swing in the field is to FARM JOURNAL.

**FARM
JOURNAL**
AND Farmer's Wife

Graham Patterson, *Publisher*, Washington Sq., Philadelphia

OVERWHELMINGLY AMERICA'S LARGEST RURAL MAGAZINE—OVER 2,600,000 NET PAID

Gas, Tire Saver

The Edison-Splitdorf Corp. of the Thomas A. Edison Industries, of West Orange, N. J., has evolved a plan which maintains efficient and constant contact with the company's distributors and at the same time conserves gasoline, oil and tires for Uncle Sam.

The method is a penny post card sent to all distributors throughout the country by the various district managers. The headline, printed in red, reads, "My Uncle wants me to save gas and tires" and the remainder of the copy in regular black type is as follows: "—and I've gotta cut down

on my trips, so I may not be around as often as I used to. But I'm counting on getting an order from you every month just the same—don't forget me. I can always be reached at the address below." This message is then signed by the local district manager with his address over the Edison-Splitdorf Corp. signature.

In the lower left-hand corner there is a smiling illustration of Uncle Sam; the same illustration, incidentally, that is being used in the company's SAVE GAS campaign. And there's a space too for the district manager to indicate when he will be in to see the dealer.



SAVE ALL WORN BALL BEARINGS FOR REPROCESSING the AGB WAY...

Do not throw away worn ball bearings. The steel in the races is valuable and when reground will give practically new bearing service. Use them for replacements. Any Ahlberg representative, dealer or distributor can give you full details about reprocessing your worn bearings. He can give you valuable help on the proper methods and equipment for maintenance that will make your present bearings give maximum service.

AHLBERG BEARING COMPANY
Manufacturers of Master Ball Bearings
★ 5028 WEST 47TH STREET • CHICAGO, ILL. ★
One West 47th • PRECISION BEARINGS, INC. Los Angeles

Expands Atlanta Branch

Expanding activities of the Atlanta, Ga., branch office of Pennsylvania Rubber Co., as a result of introduction of camelback, repair materials, batteries and other accessory items into the company's line, has necessitated a substantial increase in office and warehouse depot facilities throughout the territory.

The Atlanta branch headquarters has moved into larger offices at 58 North Ave., N. E.

To provide fast, efficient service to its dealers, Pennsylvania Rubber Co. also has opened additional new warehouse depots in the Southeast during recent months. The latest to be established is located at Memphis, Tenn., to serve Western Tennessee, Mississippi and part of Arkansas.

"SHOP APPEAL" QUIZ

Answers to Questions Appearing on Page 30.

1. Yes. No matter how cold and efficient a woman may appear, she is still primarily a *woman*, and likes to be smiled at and made to feel welcome. A smile is the best guarantee of service that she knows and she values it highly.
2. No. If you do, your attitude is undoubtedly reflected in your manner and soon you'll find that the women aren't coming in and bothering you any more.
3. (a) It takes only a matter of seconds to walk over to a car when it comes in and say to the driver, "Good morning. I'll be with you in just a moment." The effect of courtesy is worth hours of effort expended later. A woman inherently feels "out of place" in a shop and, if you can give her a first impression of welcome, it is worth many dollars to you.
4. a. Yes. b. No. c. Yes. d. Yes.
5. a. Yes. b. No. c. Yes. d. Yes.
6. They should be *relatively* clean and tidy-looking.
7. C.
8. We hope not over 5 per cent.
9. Yes.
10. Yes.

Scoring

Give yourself ten points for each question you've been able to answer correctly. (Each part of question 4 and 5 are worth 2½ points.)

90-100 We'd be willing to bet your business is good in spite of the war.

80-90 Are you faithful in practicing all you know?

70-80 Remember almost any business can prosper in good times, but the real business man can make money when things are slow.

60-70 Only fair. Does that describe your business too?

Below 60 Poor! Hope you have some hints as to where you can improve.

Facts and Flashes

From the
Technical Service Department
ETHYL CORPORATION

FROM THE WARTIME AUTOMOTIVE FRONT

1600 West Eight Mile Road
DETROIT, Michigan

Still not much change in fuel antiknock value. Octane number remains about the same. Former outlook for marked decrease definitely not in prospect now. Spark adjustment only operation necessary for overcoming knocking complaints, but first be sure car is in good mechanical shape.

Not being able to trade in for a new car is a new experience for thousands of motorists. Yearly "traders" who were likely to neglect many service operations toward close of year are good prospects for motor tune-up, changing lubricants in transmissions and differentials, oil filter unit replacements, air-cleaner service and similar operations.

New Ethyl laboratories for fuel and engine research, although not quite completed, are today in active service. Under construction when America entered the war, they were offered immediately to the government to aid in problems pertaining to military fuels and engines. Much of the work now being done will benefit peacetime transportation when the war is over, but prime job now is to help win the war.

Today's necessity of making spark plugs last longer makes correct installation of new or cleaned and regapped plugs particularly important. If plugs are tightened too much, electrodes may be distorted and insulators may break. If not tightened enough, plugs will overheat, causing rapid electrode wear and possible breakage of insulators. Torque wrenches are best, but Army uses the following rule when such wrenches are not available: screw in finger-tight, then tighten one-half to one turn with a wrench.

Suggested new slogan for tire conservation program: "If your tires are good, drive slow and save your rubber. If your tires are old, drive slow and save your skin!"

Success of U.S. Truck Conservation Corps depends more upon continuous, long range cooperation than initial enthusiasm. Automotive men are urged to assist truck owners in making preventive maintenance programs a permanent part of their operations.

"Oil is ammunition—use it wisely!"

BRAKE TO WATCH

(Continued from Page 21)

handle." When Chuck handed him the desired wrench, Pop tightened the lock nut.

"That ought to do it," he said. "Go over the other wheels the same way and let me know how you make out."

It was about 20 minutes later that Chuck went into the office, where Pop was figuring out the week's payroll. Pop looked up.

"Brakes O.K. now?" he asked.

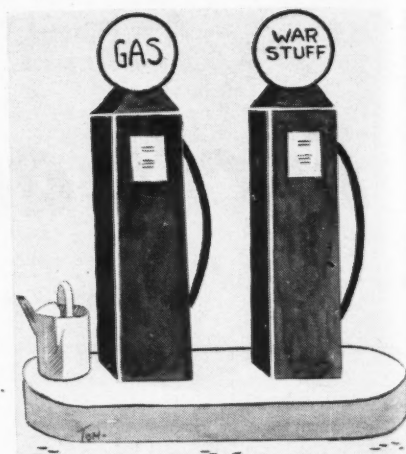
"I guess they'd do," said Chuck,

"but the job's still got an awful hard pedal. There must be somethin' wrong with the springs."

"There's somethin' queer," said Pop. "Centralizin' the shoes shoulda done the trick. But I guess we'd better have a look at it."

Back at the car, Chuck snapped the hub cap off one wheel and went to work on the wheel nuts. When the shoes stood revealed, Pop squatted and had a look at them. "I'll be damned," he said. "The last guy that worked on these brakes wasn't just forgetful. He was nuts."

Chuck was straining to see what was wrong with the shoes.



"See it?" asked Pop.

Chuck shook his head.

"Some crackpot got the springs mixed up."

"You mean you can tell by just lookin' at 'em?"

"On these brakes, yes. The orange and red springs always go on the primary shoe. That's this shoe, the one closest to the cable. The green and black springs go on the secondary shoe. The bird that reassembled this brake put a weak spring and a strong one on each shoe. I coulda fiddled with the anchor pin all week and the shoes still wouldn't have been right."

"Well—he straightened up—"we know what's wrong, anyhow. Get that article I cut out of MOTOR AGE and that will tell you how to put them brakes back together the way they're supposed to be."

"Just the left rear?" asked Chuck.

"No. Check 'em all. They oughtn't to be so bad, but if that dimwit balled up one wheel he's probably done somethin' wrong to the others. And step on it. That young lieutenant's in an awful hurry. Probably goin' East to plan a second front for the Allies. We don't want to hold him back."

"Where'll I find that article?" asked Chuck.

"On the shelf above my desk," said Pop. "And while you're fixin' the brakes, you think over what you just seen and heard. It shows it don't pay to be cocksure in the automobile repair business. I worked on so many '37 Fords I thought I could take 'em apart and put 'em back together in the dark. But I was wrong. It's just like I told you one time. Don't guess. Be sure."

Named Chief Engineer

Bruno Loeffler has been appointed chief engineer of the American Bosch Corp., Springfield, Mass. Loeffler, who is widely known in automotive engineering circles, was formerly associated with Mack Trucks, with which organization he had been connected for 20 years.



Today, your Uncle Sam is "big boss" on the biggest service job America has ever dreamed! For in modern war, manpower *alone* is helpless . . . helpless without *horsepower* . . . horsepower for victorious land power, air power, sea power.

And man, *it takes tools* to handle *this* service operation! Yes, tools have been *drafted* . . . the best that can be built . . . for the lives of American boys are dependent on keeping that horsepower rolling swiftly and efficiently.

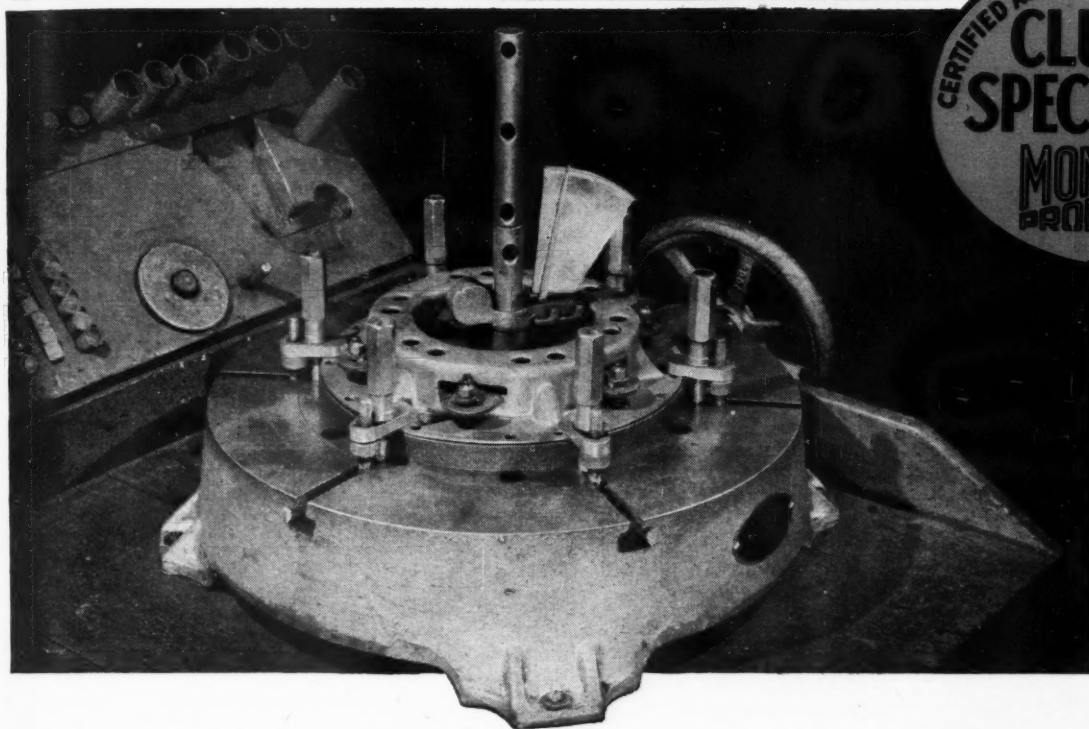
So, if we fall down on delivering some of the tools you order, you'll know there's a mighty good reason why. And you can be sure that we are doing our level best to fill your essential requirements, for we know that your job is important, too!



SNAP-ON TOOLS CORPORATION 8036-I 28th Ave., KENOSHA, WISCONSIN

KNOWLEDGE is POWER . . .

Customers eagerly seek the repairman who is a MONMOUTH CLUTCH SPECIALIST because he KNOWS CLUTCHES



At no cost, the Monmouth Clutch Specialist Program supplies you with complete, authoritative, and easily understood instruction on repair, replacement, and adjustment of every known make of clutch.

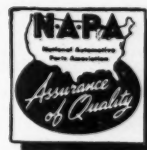
The Clutch Specialist Manual—over 150 pages of complete directions for servicing every known car and truck clutch—is free. Bulletins which keep it up to date are regularly sent you.

The Monmouth Clutch Reconditioner is a precision machine tool. On it, the clutch assembly from any known make of car or truck is quickly and in-

expensively put in perfect condition.

Advertising and promotion aids are free.

Repairmen who are proud of their work and determined to succeed can become Monmouth Clutch Specialists at no cost to them whatever. Whether operating your own shop or employed by another, you will increase earnings and profit, and build unequalled reputation by the use of this Monmouth program. Any NAPA Jobber near you will tell you how to become a Monmouth Clutch Specialist without cost or obligation. Write us direct if you are interested.



Master stocks of Monmouth Engine Bearings are maintained in NAPA Warehouses from coast to coast, assisting hundreds of jobbers in every section of the country to give prompt service even on rarely called-for numbers.

THE MONMOUTH PRODUCTS COMPANY, CLEVELAND, OHIO

**For Engine Bearings
Clutch Plates and Parts
King Bolt Sets**

Monmouth
is the name

CATALOGS
MANUALS
BOOKS AND
MERCHANDISING AIDS

Jack Sizes Fewer

Printed copies of Simplified Practice Recommendation R97-42, Bell-Bottom Screw Jacks, are now available, according to announcement of the Division of Simplified Practice, National Bureau of Standards.

When the recommendation was promulgated in 1930, it established a simplified schedule of 38 stock sizes of bell-bottom screw jacks, which represented a reduction of approximately 50 per cent of the 78 sizes then being manufactured and cataloged by the industry.

The current revision further reduces

the stock list to 27 sizes of jacks, an elimination of 11 sizes, or 29 per cent.

Power Brakes

The A B C of Vacuum Power Brakes, published by Bendix Products, Inc., South Bend, Ind., supplies the basic information for mechanics and apprentices on the fundamentals of automotive vacuum power braking. All the different types of vacuum power brakes are described and illustrated in detail and a special section is devoted to diagrams of typical B-K installations, covering not only trucks and tractors, but also trailers as well. Copies of this 132-page manual can be obtained by writing S. V. Harding, Bendix Products Division, South Bend, Ind.

Accessory Manual

Complete with passenger car accessory inspection, installation and replacement information pertinent to the conservation of automobiles now in service, the 1942 Chexall Accessory Manual is now off the press, it is announced by The Chek-Chart Corp., Chicago, publishers.

The 1942 edition, called the "Conservation Maintenance" edition because of its particular application in automobile maintenance by service stations, is new in size, 7 1/4 by 11 in., which permits listing all accessory specifications for each model car on a single page.

The single copy price of the new edition is the same as last year, \$3.50 f.o.b. Chicago.

Mechanic Training Plan

Prepared for Dealers

A wartime training program for apprentice mechanics, designed to assist the automobile dealer to increase personnel in the service department as that division of the retail operation expands under war conditions, has been prepared by Chevrolet's national service department and released to dealers, Ed Hedner, director, has announced.

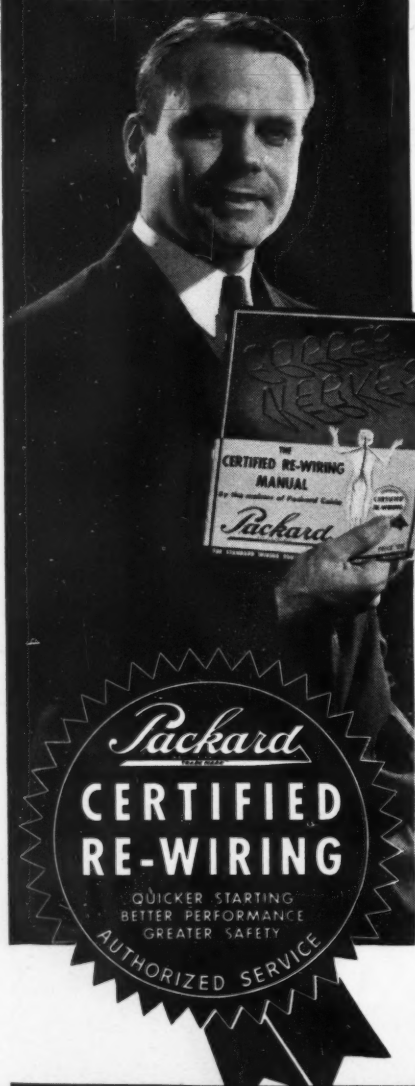
Special phases of the training program are considered in the new release, including the employment of women, interviewing of applicants, specialized training, night classes and the apprentice's curriculum.

Based on Chevrolet material already distributed, the training course incorporates study of the Shop Manual, as well as some 50 service films, participation in a monthly shop meeting program distributed nationally, and reference to the Chevrolet Service News, a monthly publication containing latest service information.

A minimum of four weeks of training is advised in the Chevrolet booklet.

The 14-page program booklet has been distributed to more than 8000 Chevrolet dealers from coast to coast.

A BIG HELP IN TRAINING NEW MECHANICS



The practical, useful electrical information and service instructions contained in the Certified Re-Wiring Manual, "Copper Nerves," have helped thousands of dealers "break in" new mechanics. And that doesn't mean that the "old hands" don't get plenty of good out of it, too.

The information and instructions are "right to the point," with illustrations that show how to check the electrical system and how to make repairs and replacements. Packard Certified Re-Wiring methods save time, assist in National Conservation, and help you give better electrical service.

See your Packard jobber about becoming a Packard Certified Re-Wiring station, and get *all* the advantages this program offers. It includes regular service bulletins that keep you up to date—displays, mailing pieces, and consumer material that bring you more business. Packard Electric Division, General Motors Corporation, Warren, Ohio.

Packard
REG. U.S. PAT. OFF.
TRADE MARK
"Working for Victory"

THE STANDARD WIRING EQUIPMENT OF THE AUTOMOTIVE INDUSTRY

YOU CAN COUNT ON Raybestos To make safety pay



Here are the new posters in the third year of the powerful, nation-wide safety alliance of the friendly cop and Raybestos.

Police, schools and safety groups in 41 states have requested and put up thousands of Raybestos Safety Posters during the past three years.

Now, with America at war, safety is more vital than ever, and your biggest sales appeal for car conservation. And now, more than ever, putting up your new Raybestos poster will help make safety pay . . . in dollars to you, as well as in lives saved.

"You can count on Raybestos"

THE RAYBESTOS DIVISION of Raybestos-Manhattan, Inc., BRIDGEPORT, CONN.

Raybestos
AMERICA'S BIGGEST SELLING
BRAKE LINING

YOUR 2
BEST FRIENDS
for
HIGHWAY
SAFETY



BRAKE LINING, CLUTCH FACINGS, FAN BELTS, HOSE • FOR CARS, TRUCKS, BUSES, TRACTORS • ON THE WAR AND CIVILIAN FRONTS

MOTORTransport

(Continued from Page 37)

tive observers are ready to cheer about the preliminary motions already. They like the way Ordnance is setting up its organization and they apparently feel that Ordnance has the competent officers who have some appreciation of maintenance. Already Ordnance has shown that it is going in for maintenance of automotive equipment in a big way. There is every indication that maintenance men are going to be more important

in this new set-up than they ever were before.

*PARTS

There is some criticism of the fact that when replacement parts are needed the most they sometimes are not available, due to a dislocation of manufacturing effort as a result of war orders and entirely apart from any shortage of materials.

It happens this way: A manufacturer has the only equipment capable of making certain parts. He has a large manufacturing capacity and, as a result, is loaded down with war or-



James S. Allen, president of the Walker Manufacturing Co., left, holds the Navy "E" flag recently presented the company for outstanding war production. On the right is Rear Admiral George H. Rock, U.S.N.R., (retired) who made the presentation.

JOHNSON BRONZE



Slip-in

BEARINGS

Confidence

★ Confidence is the reward of merit. In bearings it is the natural result of improved performance . . . of longer bearing life . . . of smoother operation.

Johnson *Slip-in* Bearings deserve your absolute confidence. More than thirty years specialized experience governs their production. Leading car manufacturers specify them for original equipment. Your local jobber carries a complete stock. Try a set on your next job.

Write for New Catalogue



JOHNSON BRONZE

Sleeve BEARING HEADQUARTERS

455 S. MILL STREET • NEW CASTLE, PA.

ders. Since the war orders come first, the manufacturer sets up his machinery when and if he can find space and time and makes a job lot of replacement parts. Since the retooling necessary is expensive, the manufacturer is reluctant to do it often even if he could by straining his organization a bit. The result is that, if he has guessed wrong on how long the last job lot will last, there is a shortage of parts simply because the manufacturer is busy making something else.

There is a feeling that the equipment necessary for making parts in such cases should be placed in one of the small manufacturing plants that are not equipped to handle war orders so that a smooth even flow of parts would be available to keep transportation at its peak.

Ask Fewer Traffic Lights

"Blackout" of hundreds of thousands of traffic signal lights made unnecessary by wartime motoring conditions is being urged upon cities and states by the American Automobile Association.

"Even in normal times, there was perhaps 30 per cent more traffic lights than were warranted by conditions," said Thos. P. Henry, of Detroit, Mich., president of the national motoring body.

"With large-scale diminution of traffic because of the tire and gasoline situations and adoption of group riding plans, the number of useless traffic lights will be increased many fold."

Blaker Vice President

Announcement has recently been made that on July 20 the Board of Directors of The Wayne Pump Co. elected O. M. Blaker vice president. Blaker is well-known to the automotive and petroleum industries, having been associated with Wayne since 1933. In 1936 he was made assistant sales manager, and in 1938 was appointed assistant to the president, Mr. B. F. Geyer.



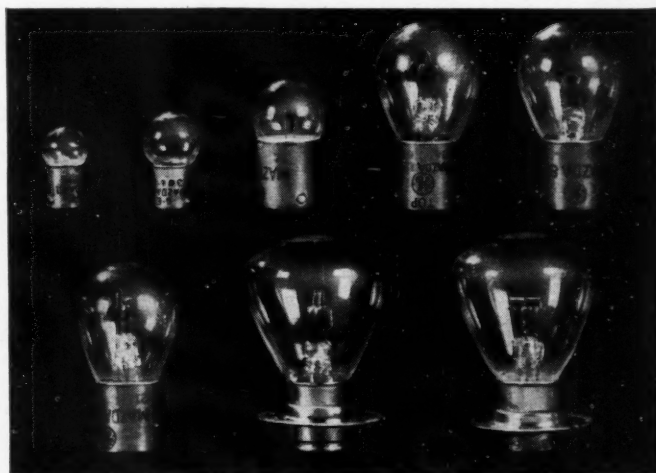
"All of us in the car felt the danger much more than when we hear the depth charges drop!"

THAT'S the way a former G-E employee now in the Navy describes driving a car in a dim-out. He's seen action on both sides of the world but dim-out driving seemed more dangerous than a submarine attack!

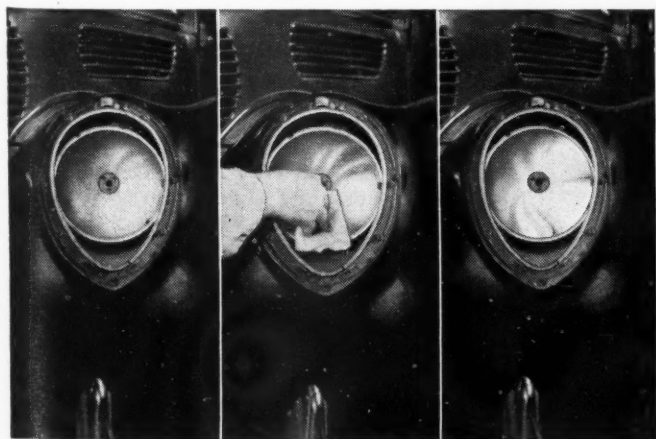
Thousands of car owners are driving in a dim-out that results from failure to maintain their car lighting and are taking needless risks every time they drive at night. Here's how *you* can keep 'em rollin' more safely:



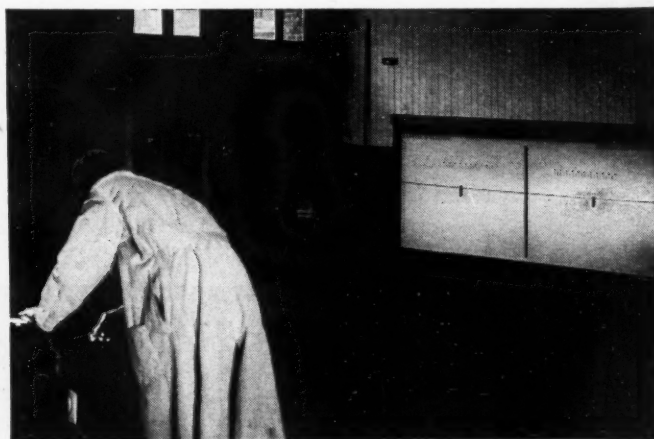
1 WHEN YOU REPLACE Sealed Beam lamps, be sure they are "All-Glass" G-E MAZDA lamps. They give 50 per cent more light than pre-1940 head lamps!



2 REPLACE BURNED-OUT driving, parking, and stop lights with G-E MAZDA Auto Lamps. They stay brighter longer.



3 DIRTY LENSES and reflectors on pre-1940 headlamps can cut light output by as much as 50 per cent. Keep 'em clean!



4 VIBRATION and road shock loosen headlamps. Aim headlights to direct maximum light on the road and minimize glare.

G-E MAZDA LAMPS

GENERAL  ELECTRIC

Auto-Lite Sterling Offers Cable Reconditioning

Designed to conserve copper and lead, a plan just announced by the Electric Auto-Lite Co., Wire Division, makes it possible to have battery cables and ground straps reconditioned. The plan operates through Auto-Lite Sterling distributors.

Used cables in which not more than 10 per cent of the copper strands have been severed may be turned in to the Auto-Lite Sterling distributor, who forwards them to the factory. Insulated cables must be at least 13 in. long and rope cables

and ground straps must be at least 7 in. long.

At the factory, worn or damaged insulation is replaced, and a new non-corrosive terminal with bolt and nut is pressure-cast to copper conductor. Lug is resoldered or replaced with new power-lug if necessary. Finally a new abrasion-resistant loom braid is applied over entire length of cable and impregnated with weather-resistant compound.

In the case of ground straps, corrosion and grease are removed and a new terminal, with bolt and nut, is pressure-cast to conductor. Then the straps are stretched and ironed and

impregnated with a corrosion-resistant compound.

All cables will be identified as Auto-Lite Sterling Re-Conditioned by a label guaranteeing that cable is in serviceable condition, and noting its length, type and Auto-Lite part number for which it can be used.

Army Captain

Paul L. Hexter, vice-president of The Arco Co., responsible for the development of its new infra-red-reflecting camouflage paints and its paint-mixing machine, has received a commission as a captain in the Army Air Force. He will be attached to the proving grounds at Eglin Field, Fla., in the section devoted to development of new camouflage techniques and photography.

Hexter attended the Army's civilian training camp at Fort Benjamin Harrison in 1940, and soon thereafter developed Arco's new Infray paint on the strength of his familiarity with photographic processes and photo-chemistry. It is now being used for the protective concealment of vital defense structures and military equipment.



Capt. Paul L. Hexter

CONTINENTAL BULLETIN



THIS CONFIDENCE MUST BE MAINTAINED

Just because bombers, pursuit ships, tanks or PT boats do not roll from our assembly lines, let's not forget that production schedules for those fighting craft would be thrown "all out of whack" if Continental rubber parts did not come through on time.

Fortunately, we of Continental have specialized in meeting sudden and unusual requirements for so many years that we are meeting these war demands with exceptional promptness and accuracy. These crucial war industries have the same confidence in us which civilian users of industrial rubber goods have had in the years gone by—a confidence that is up to us to maintain.....at all costs.

From Factory Bulletin Board of the

CONTINENTAL RUBBER WORKS

MAKERS OF THE VITALIC LINE SINCE 1903

ERIE, PA., U.S.A.



Alpert Cutter-Retriever

The Pack-Rite Machine Corp., 828 North Broadway, Milwaukee, Wis., states that the Alpert "Long-Nose Cutter-Retriever" is designed to cut wire with one-handed, one-fingered trigger operation and also to retrieve or to hold in a powerful grip nuts, bolts, washers, etc., at inaccessible points.

The tool resembles a pistol, the cutting edges being located at the end of the long slim barrel. To cut wire, the operator merely places the wire between the cutting edges and snips off the wire by bringing down the trigger. The leverage ratio is 15 to 1.

To retrieve a small part which may have dropped into an inaccessible place, the trigger is brought downward and the cutters pick up the missing part.

Fire Extinguisher Box

A new box to house and protect fire extinguishers has been placed on the market by the Erie Supply and Equipment Co., 426 Huron Ave., Sandusky, Ohio. This Tam-Pruf box is an all-metal container with glass windows on the side for inspection. The door of the box is padlocked to prevent tampering but, on the front of the door, there is a lock seal which can be broken by hand pressure, the arm released and the door swung open.



COLOR

A NEW ERA of fan belt durability began with Thermoidized Pre-Stretching... and spread throughout the country with the fast-growing sales of Thermoid Thermoidized Pre-Stretched Fan Belts. Are you giving your customers — and your profit-sheet — the advantages of this new development?



Thermoid

*Thermoidized
Pre-Stretched*

FAN BELTS

THERMOID COMPANY • TRENTON, N. J.

SHOP HONESTY PROVED BY SURVEY

BUFFALO garages and service stations are predominantly honest and fair in their relations with the motorist, especially the transient, a survey by the Buffalo Better Business Bureau has revealed. The investigation was directed by Norris H. Whitlock of the Bureau Automotive Division. Results were announced by Gordon E. Smith, bureau manager.

"Last summer a national magazine published the results of its own survey, indicating that several hundred

garages in various parts of the country had attempted to gyp an investigator who was out trying to see how often he could get stung," said Smith. "Nothing in this article indicated whether or not the investigator had visited any Buffalo garages and we thought that until such time as a local investigation could be made, there was a stigma attached to the entire automobile repair trade. We are, of course, delighted that any accusations such as were made in the



"Can you wait a minute? I'm not quite ready!"



...and Keep America's Key Transportation Rolling

● Here's your opportunity to help win the war right in your own shop!

Every Tune-up job is the "Care" that will save America's cars and materials. Tie-in with the nation's greatest need—automotive conservation—by selling "America's Finest" Tune-Up with Genuine NIEHOFF Parts.

This complete campaign—"Care Will Save Your Car" can be yours free of charge. Send for full details Today!

C. E. NIEHOFF & CO.

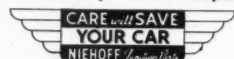
4925 W. Lawrence Ave., Chicago

Branch: 1342 S. Flower St., Los Angeles, Cal.

NIEHOFF

TAKE OFF
with
NIEHOFF
TODAY

Free Display Material That Ties Your Shop To This Campaign



WINDSHIELD STICKER



LAPEL BUTTON



POSTER STAMP



WALL STREAMER

magazine do not apply to Buffalo."

The car used in the Better Business Bureau survey was of standard make. "We wanted a car more like the one the average motorist drives," said Smith. The car was driven by a man (the average motorist is a man) and was equipped with Ontario license plates. Before entering each garage, the 'motorist' made a slight maladjustment to his carburetor which caused the motor to stall at the slightest provocation. This is something that very often happens to cars and it causes symptoms which might mean serious trouble, but any diligent service man would try to correct it first before recommending other repairs."

And this is exactly what the honest repairmen of Buffalo did. In 30 out of 32 places visited, the maladjustment was corrected promptly and courteously. One place suggested that the motorist go to another garage specializing in this make of car. In the other place, the mechanic fidgeted with the motor at some length and ended up by leaving it just as it had been originally. However, he charged a dollar for this, which the bureau thought was excessive. This is the one case out of all 32 which the bureau feels is unfavorable and the repair shop in question is one which has been widely complained about in the past.

As to the charges made by the garages and service stations, 21 places charged a nominal 25 cents, while two charged 50 cents. Thirty-five and 40 cents were charged in two other places.

Five places, however, did the work and made no charge whatever. One of these was a big garage catering to the better-class overnight hotel trade—the type of garage which the magazine investigators contended was especially piratical. Three of the places which made no charge were in South Buffalo and the other in Michigan Ave.

"We do not expect garagemen to
(Continued on Page 90)

MEMO

FROM "THE CHIEF"
TO THE
SERVICE MANAGER

Jack:-
Here's another of
those Wolf's Head
Ads that hit the
nail on the head.*
This is good stuff
and we ought to cash
in on it. Get the
dope from the Wolf's
Head distributor.
C.W.

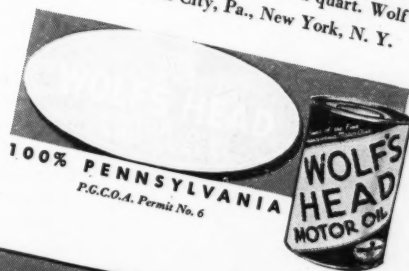


They might as well be

THE parts of your automobile engine are now worth the very BEST protection you can provide. A breakdown of any one part might lay your car up for the duration. The one thing—the SURE thing you can do to prolong the life of your car is to use the BEST oil money can buy.

How can you judge oil quality? Be guided by automobile and aviation designers and engineers. They use Wolf's Head... Pan American "Clippers" have used it for over 13 years, in more than 900 million passenger-miles... Wolf's Head is now being shipped all over the World for use in United Nations' planes!

For more than 60 years Wolf's Head has been engineering lubrication to meet changing engine design. Wolf's Head Oil is the very BEST engine-protection you can buy —yet it costs only 35c a quart. Wolf's Head Oil Refining Co., Oil City, Pa., New York, N. Y.



TRUCK OPERATORS

Latest tests show Wolf's Head HEAVY DUTY Oil definitely superior for protecting truck and bus engines. Write today for facts and figures. Meanwhile, get Wolf's Head HEAVY DUTY Oil—it's made for you!

*SATURDAY EVENING POST . . . SEPTEMBER 26
LIFE OCTOBER 26
COLLIER'S NOVEMBER 7

SEPTEMBER, 1942

When writing to advertisers please mention Motor Age

KNOW YOUR CUSTOMERS

A SERVICE station operator is in business to sell his products and to give service. The one who has the best products and gives the best service generally makes the most money, assuming he has a choice location.

Dealing with the public is a big job. Dispensers of gas and oil must know what to say and do under all circumstances if they are to keep old friends and win new ones.

Some customers can be kidded; others must be handled with kid gloves. When a man drives up in an

old battered jalopy he seldom enjoys being ribbed about his "crate." Even if he says, "Do you think five gallons of gasoline will do this old thing any good?" he doesn't expect or appreciate a retort like, "Well, I don't know—looks pretty hopeless to me." The smart service station man should say, "Sure. Looks like she's got a lot of running in her yet."

A barber shop customer may say, "I want a haircut—if you can find any hair to cut." But not one such man in a hundred likes to be kidded

about his shiny pate. The same is true of the man using an old car. Smartercracking is rarely wise on the part of the business man. One has to know a customer mighty well before doing any ribbing. And even then it is better just to be friendly, cordial and at times sympathetic.

In spite of warnings not to add grease in the differential of a car when a change is indicated, many service station men do exactly that when a customer requests it. But not the smart ones.

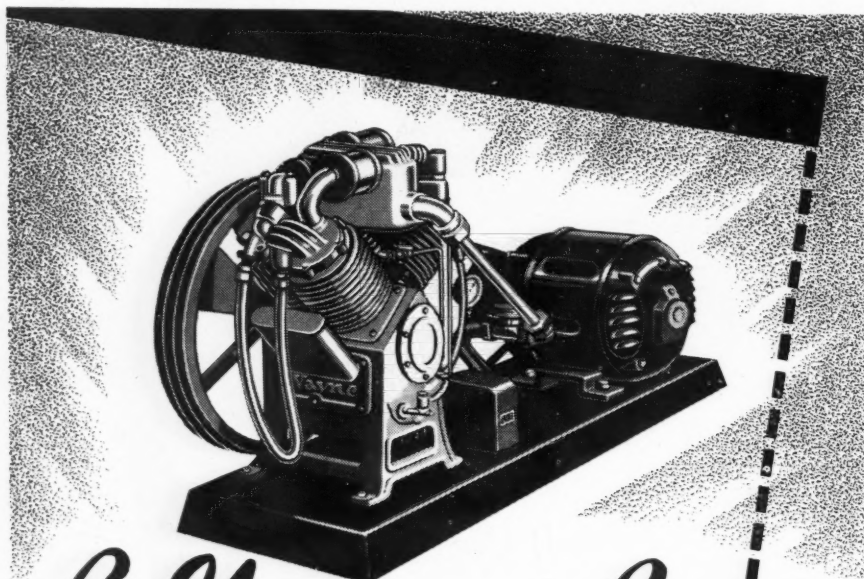
As one successful operator told me the other day, "I want to keep on good terms with my customers. And I can't do that by burning out his gears even when he is perfectly willing to have me add grease to the differential instead of letting me flush it and fill it with new grease. He's bound to hold me accountable if trouble develops, as it's almsot sure to do later." That man spoke words of wisdom. If the car owner wants to take a chance by adding grease himself, that is his own business. But he should be warned against it.

Every service station is pestered more or less by small boys who come in to inflate the tires of their bicycles. This should be regarded as a necessary evil and not the occasion for a bawling out. It should be remembered that their dads drive cars, and, when the boys are not well treated, they tattle at home, their dads don't come back to buy. So it pays to be patient with the boys.

Some service station operators sell candy, gum, cigarets and similar items, and this is a good idea. But in some cases, boys hanging around the station, find it is easy to put small objects into pockets and get away without paying for them. Few operators care to risk accusation even when their suspicions are well-founded. Several service stations have been forced to keep small items locked up so that the cases cannot be opened by hungry boys when outside customers are being served. This takes care of the situation nicely without offending anyone.

In this day and age, it would seem unnecessary to mention the matter of asking about the oil and wiping windshields. Yet I have patronized dozens of stations that did neither. These two things should always be done.

Women customers especially appreciate a clean and neat station and fight shy of those cluttered with all sorts of odds and ends. The approaches should be washed regularly. The attendants should be attired in clean clothes. Nothing irritates a woman more than to be served by a sloppily dressed attendant. Greasy hands never improved the appearance of a fender yet there are a few stations that apparently never miss a chance to leave their mark on the sparkling finish of new cars when checking the oil and water. So, there's room for a better approach to customers here.—Paul Carter.



A National Asset IN YOUR CARE...AND OURS



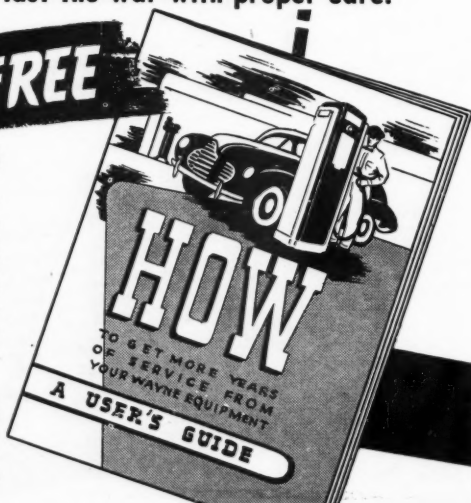
"MAINTENANCE is our industry's Number One job." That also means maintaining the shop equipment needed to do the job. Your Wayne Air Compressors will outlast the war with proper care.

FREE

ASK FOR FREE WAYNE MANUAL

This booklet tells what to do to give your Wayne equipment the proper "preventive maintenance." When serious problems develop call a Wayne Service Man. Our nation-wide service organization is ready to help you "keep 'em pumping" for the duration!

**THE WAYNE
PUMP COMPANY**
FORT WAYNE, INDIANA



JOBBER'S DIGEST OF SEPTEMBER MOTOR AGE

Following is a brief digest of important articles appearing in this issue of **MOTOR AGE**. Read the digest and discuss the service procedure and the topics of general business interest with your customers.

WAR-TIME RECAPPING

Before the war put a halt to rubber imports, recappers and retreaders had definite ideas about their craft. Now that more people are clamoring for



recapping and retreading than existing shops can handle comfortably, these pre-war ideas have had to be revised, especially as they affect the types of carcasses suitable for rebuilding. This outstanding set of photographs shows how one shop selects its carcasses under present conditions and how it has speeded up its recapping methods.

ADJUSTING THE BLOWPIPE FLAME

Gas welding is in greater demand in automotive shops than ever before. A serviceman can't afford to waste time in fumbling around for the right method and he can't turn out anything but a first-class job. Here, in an exceptionally well-illustrated article, is the information he needs for a good start on any gas-welding job, the right type of flame. The article is the first of a series.

HALVING CYLINDERS TO SAVE GAS

It seemed like a simple idea when Sun Oil Co. engineers began working on it. If six cylinders consumed a gallon of gas in propelling a car 18 miles, half as many cylinders ought to propel a car farther. But would the performance be satisfactory in other respects? The engineers tested car after car, eights as well as sixes, and found that performance was surprisingly good. This article summarizes their findings, which will have the effect of opening up an entirely new field for the serviceman.



HOW'S BUSINESS

A MONTHLY REPORT ON MAJOR ITEMS BY 500 JOBBERS

AUGUST, 1942

NATIONAL TOTAL				NATIONAL TOTAL			
	Good	Fair	Poor		Good	Fair	Poor
ACCESSORIES				REPLACEMENT PARTS			
	Poor				Good		
Abrasives	47	100	32	Axle Shafts	45	93	61
Anti-Freeze	61	67	52	Ball and Roller Bearings	110	86	15
Car Radio Sets	3	9	99	Brake Lining	118	85	14
Car Radio Accessories	3	15	96	Bushings	59	104	33
Chains	2	22	122	Chains (Timing)	28	108	69
Heaters	2	18	136	Clutch Plates and Parts	110	78	13
Horns	2	28	116	Fan Belts	141	63	11
Lacquers	33	106	49	Gaskets	133	72	5
Oil Filters	94	99	17	Gears (Rear Axle)	37	102	60
Oils and Greases	23	63	35	Gears (Transmission)	54	105	37
Polish	25	122	51	Mufflers	139	70	5
Seat Covers	35	91	57	Pistons	75	103	29
Thermostats	5	37	122	Pins	89	98	20
	335	797	985	Rings	111	81	16
SHOP EQUIPMENT				Radiators and Cores	31	56	75
	Poor			Spark Plugs	100	80	32
Battery Charging Equipment	9	46	126	Springs (Chassis)	35	79	53
Car Lifts		11	149	Valves	90	89	16
Car Washers	3	9	143	Water Pump Parts	111	79	12
Compressors	17	48	106	Engine Bearings	135	53	10
Drills (Electric)	37	63	85		1751	1684	586
Electrical Testing Equipment	4	35	125	ELECTRICAL UNITS			
Jacks (Garage)	27	85	73		Fair		
Lubricating Equipment	8	57	110	Armatures	64	109	20
Paint Spray Equipment	7	60	108	Batteries	95	96	19
Tire Service Equipment	21	32	100	Cables (Battery)	69	114	30
Tool Kits and Sets	44	52	71	Coils	83	106	25
Valve Refacers	13	45	113	Other Ignition Parts	86	106	16
Wheel Aligners	5	31	122	Fuses	55	126	33
Wheel Balancers	7	42	114	Ignition Wires and Cables	55	117	41
Frame Straighteners	2	19	128	Lamps	58	134	22
Headlight Testers		15	127		565	908	206
Welding Equipment	42	50	82				
	246	700	1884				

MOST ACTIVE LINES

Positions of Leaders	July 1942	July 1941	Oct. 1941	Positions of Leaders	July 1942	July 1941	Oct. 1941
Fan Belts	1	4	4	Batteries	11	13	5
Mufflers	2	1	2	Oil Filters	12		15
Engine Bearings	3	5	6	Valves	13	15	20
Gaskets	4	3	3	Pins	14	20	
Brake Lining	5	7	9	Other Ignition Parts	15	11	14
Rings	6	6	8	Coils	16	19	
Water Pump Parts	7	12	7	Pistons	17		
Ball & Roller Bearings	8	9	11	Battery Cables	18	17	12
Clutch Plates & Parts	9	8	14	Armatures	19		
Spark Plugs	10	2	1	Anti-Freeze	20		10

HOW ITEMS ARE RATED

"Most Active Lines" are chosen on the basis of the highest number of jobber reports indicating "Good" for the items selected among the twenty most active lines. "Activity" as used here has no bearing on volume, so the lists should not be interpreted as meaning the lines on which jobbers are enjoying the greatest volume. Most active lines are those which the greatest number of reporting wholesalers indicate are selling "considerably above normal" in their particular markets.

HOW TO READ THIS CHART.

Information from which this chart is compiled is obtained monthly from a selected list of 500 wholesalers. Figures show the number of wholesalers reporting. Normal is taken as average sales for this month during the past few years.

Good—Sales considerably above normal.

Fair—Sales slightly above or below normal.

Poor—Sales noticeably below normal.

THE WAR CAN'T WAIT..

Donald M. Nelson says to Automotive Sales and Service Outlets:



"America's rising war production program must not be hampered because of present shortages of scrap materials of all kinds—steel, iron, rubber, copper, brass, lead, zinc, tin, burlap, rags, and rope. The greatest single source for most of these materials, is in the old jalopies, broken parts and accessories lying around your establishments. We urge you to begin *at once* an all-out drive to condemn useless cars and round up vital odds and ends of scrap. Your active cooperation is essential to the war program!"

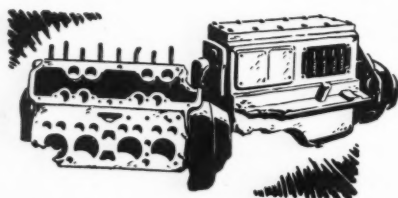
U.S. NEEDS ALL SCRAP..TODAY!

SELL YOUR SCRAP TO SHORTEN THE WAR!

HERE'S WHAT TO LOOK FOR



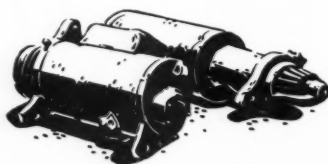
OLD AUTO BODIES . . . Dismantled chassis, frames. Also old tires, rubber floor mats, upholstery and head lining fabric. Clean out and junk the bodies that you know will never be used again. An average auto body provides enough scrap steel for thirty, 50-calibre machine guns!



CYLINDER BLOCKS . . . valves and pistons, connecting rods, crankshafts, flywheels. Don't forget—half of every tank, ship and gun is made of scrap. Even one old flywheel provides scrap enough for a 100-lb. aerial bomb!



AXLES . . . differential housings, shafts, brake drums. Don't pass up a single bit—don't miss even a single spring leaf. Every ounce of metal you ignore helps Hitler!



GENERATORS AND MOTORS.

Lots of electrical parts are kicking around because someone thought they might be needed "some day." Today's the day! Old generators and motors yield steel, tin, copper, brass, lead—all of them sorely needed. Turn them in!



SPEEDOMETERS, GAUGES . . . and other instruments. They contain valuable steel as well as useful quantities of scarce non-ferrous metals. It takes 16,000 pounds of scrap for every 15-ton tank!



GEARS AND BEARINGS. Nothing is too small to be valuable. Round up odds and ends. It's all high quality steel—just what is needed to make fighting weapons for America's armed forces.

HERE'S WHAT TO DO . . . Appoint one man as Salvage Manager for your organization. Give him authority to *act*—to condemn old equipment, to move material, to collect scrap of all kinds. Have him separate all scrap by type. Then move it promptly through your regular scrap dealers. Don't wait—start rounding up scrap *now*—and keep it moving until the war is won!

**THROW YOUR
SCRAP INTO
THE FIGHT
!**

This message approved by Conservation Division
WAR PRODUCTION BOARD

This advertisement paid for by the American Industries Salvage Committee (representing and with funds provided by groups of leading industrial concerns).



**FOLLOW THE STANDARD
IN THE WAR AGAINST
DIRTY OIL**



**DIRTY OIL
CAN RUIN
ENGINE
PARTS**



**CLEAN OIL
KEEPS
ENGINES
HEALTHY**

Make no mistake! *Dirty oil* is an enemy that can put plenty of cars off the road. *Your customers' cars. Your bread and butter.*

Fight dirty oil with *genuine* Purolator oil filter service! Standard equipment on the majority of all filter-equipped engines, both gasoline and Diesel, genuine Purolator oil filters provide certain, safe protection. There's no substitute for Purolator experience and Purolator quality.

Purolator replacement elements list at \$1 and up. Genuine Purolator filters and conversion units at popular prices — with *immediate delivery*. Insist on getting your filter equipment from the founder and leader of the oil filter industry — Purolator Products, Inc., Newark, N. J.

**KEEP IT CLEAN
with
PUROLATOR**

OPA has approved your use of CHILTON FLAT RATE and SERVICE MANUAL to comply with GENERAL MAXIMUM PRICE REGULATION (No. 165) effective July 1

● If you were a Chilton Manual user in March—DO THIS:

Memorandum from Office of War Information, Office of Price Administration, dated August 19, states: "If, during March, in your regular pricing method, you used an established flat-rate or similar manual, you can fulfill requirement by—

- Identifying clearly the manual you used in March by filing its name and edition number or date; and
- Stating your customer's hourly rate in March (your hourly labor charge) where the manual required you to use one, or where you did use one; and
- Indicating all cases where it was your custom to deviate from the manual; and
- Showing how you set prices in March in those cases where you did not use the manual."

This means that OPA will accept the prices you charged during March from the Chilton Manual,

or deviations from these prices, provided in the case of deviations that you (paragraph C above) "Indicate all cases where it was your custom to deviate; and if you did not charge on all jobs during March the Chilton prices that you (paragraph D above) "Show how you set prices in those cases where you did not use the manual."

Thus, under these provisos of OPA, whether you charged everything according to Chilton, or charged part of the jobs on Chilton prices and part of them on prices of your own, or from another manual, you can easily comply with the Regulation by doing what is described above.

If you used Chilton or any "established flat rate or similar manual" in March, OPA has thus made it easy for you to comply with the Regulation.

We are reprinting below a sample form, prepared by OPA, as an example of how to make your report to the local OPA office.

Here is a model statement of maximum prices prepared by OPA specifically as a guide for the automotive trade in meeting the filing requirements of the service regulation. Prices shown are for the purpose of illustration only, and are not ceiling prices set by OPA. Each establishment must determine its own ceiling prices.

Statement of Maximum Service Prices Motor Sales and Service Company 52 Main Street Hometown, Michigan

In all cases the prices listed below were the highest charged during March, 1942.

Prices for services regularly supplied at a fixed charge are as follows:

Chassis lubrication—done accord-

ing to factory recommendation.
Grease, when supplied, charged for at March prices.....\$1.00
Minor brake adjustment—service brakes, taking up and adjusting only 1.00
Washing and polishing—polishing of body and bright work with liquid polish only. No waxing. 2.50
Car wash 1.00
Changing tires (per tire)..... .25
Patching tubes (per patch)..... .25
Calling for and delivering car (within city limits)..... .50

We do general repair and maintenance work on automobiles and trucks, including body and fender work, radiator repairs, welding, battery and ignition work, lubrica-

tion, washing, and patching inner tubes. Prices for labor and material are listed separately on our repair bills.

All repair prices are based upon a fixed charge of \$2 per hour for labor (this charge includes overhead or indirect costs and profits), plus the charge at March list for parts and material used.

We charge for parts supplied in connection with service as follows:

- Where manufacturer's parts used, Price List X-146 of the Rollfast Motor Company, in effect in March, 1942.
- Where other parts used, Price List L-152B of the Hometown Motor Parts Corporation dated December 1, 1941, in effect in March, 1942.

SAVE TIME • SAVE TROUBLE • by using the

● If you were not a Chilton Manual user in March, DO THIS:

Send immediately for a copy of the Chilton Manual.

The supply of the 1942 edition is limited. Send for a copy *at once*. Use the Chilton Manual as your base for maintaining your prices. You do it this way.

With your own bills before you and the Chilton Manual, go through job after job and determine what prices you would have used from the Chilton Manual if you had been using it.

Thus, the Chilton Manual labor prices are based on a \$2.00 per hour rate. If you charged \$2.00 per hour, then you can use the manual prices for the duration as they coincide with your prices.

If you used a lower or higher labor charge than \$2.00 per hour, turn to the Conversion Table in the back of the Manual and on every job convert either downward or upward.

You do not even have to bother to figure out the converted prices. This has all been done for you in the Chilton Conversion Table.

What the Chilton 1942 Manual does for you is to supply a reference book that you can turn to, to obtain the exact price to be charged (if you had a \$2.00 hourly rate in March); or (if you did not have a \$2.00 rate in March) it provides an indispensable *base* of all jobs on all makes and models for six years back, including 1942; from which you can, by converting to your March hourly labor rate, calculate the proper price for every job under the Regulation.

Without these hundreds of pages of reference data you will probably be hopelessly swamped in attempting to comply with the Regulation. If you yourself would try to list all job prices on all makes and models of cars for years back you would literally have to make about a quarter of a million calculations, which is practically an impossibility. It took 10 Chilton Editors an entire year to do this. The Chilton Manual gives you the necessary reference base that makes this unnecessary.

Tell your local OPA that you are using the Chilton Manual as a base to figure from. Tell them how you intend to do this. Ask them for advice and instructions. Save yourself trouble and keep from being a headache to the OPA by using a Chilton Manual.

Mail this Coupon to Chilton right now



While you should secure a copy of the General Maximum Price Regulation No. 165, if you do not have one, and study it carefully, here are the four essential things it tells you that you must do.

1. If you had a flat or definite amount which you charged for a specific service in March, that is the most you may charge now for that same service.

On all service work which in March you priced according to a regular pricing system (such as time records or labor manual used in connection with an hourly customer rate) you must not change the method used if it will result in higher prices.

If the quality of the service is lowered the price must be lowered correspondingly.

You may not charge extra for delivery or any other part of the service which was included in your March price.

You must continue to give discounts, etc., which it was your custom to give in March.

2. Keep all records of any kind which have any bearing on prices you charged in March. Such records would include duplicates of customers' sales slips, invoices, work orders; also posters, display cards, advertisements, letters, post cards, etc., in which service prices were quoted.

3. Prepare a list showing:

a. The highest prices you charged for services supplied or offered during March, 1942, for which you regularly quoted prices in that month; and

b. The pricing method, if any, you regularly used during March, 1942, for services on which you did not have a flat or set price and which you priced according to an hourly rate or other method; and

c. All customary allowances, discounts, and other price differentials which you customarily allowed or offered (would have given) in March.

This statement must be filed with your local War Price and Rationing Board of the Office of Price Administration. Every one who supplies a service must keep this statement available for examination by any person during ordinary business hours, with one exception:

On any portion of a business which is not at retail, prices need not be made public if it is claimed that substantial injury would result therefrom. This claim must be made in an affidavit and attached to the statement you file with the local War Price and Rationing Board. The Office of Price Administration will keep such prices confidential unless to do so is contrary to the purposes of the Regulation.

4. If you have usually given a duplicate of the work order or any kind of sales slip as a receipt for money paid, you must continue to give whatever kind of receipt you customarily gave.

When requested, you must give a receipt showing your name and address, the date, the service supplied and the price charged.

We use the 1942 Flat Rate Manual published by Blank Company, a copy of which is available for inspection. With one exception, on all operations listed in that manual we compute our labor charges by multiplying the hours; it specifies by our customers' hourly rate of \$2. The one exception is Operation S-67, Complete Engine Tune-Up, listed on page 83, where the specified time is two hours, and our flat price is \$3.50.

On all operations not listed in the manual, prices are computed by multiplying the actual time the job takes, by the hourly rate of \$2.

Towing Charges

Towing to shop from any point within the city limits—\$1; outside the city limits—\$1 per mile for the first five miles; beyond five miles—50 cents per mile.

Chilton Manual

SEPTEMBER, 1942

Chilton Company, Chestnut and 56th Sts., Philadelphia, Pa.

Please mail me immediately a 1942 Chilton Flat Rate and Service Manual, and enter my subscription for a year to Motor Age magazine, the automotive shopman's own publication. I understand that my order includes free of charge a copy of the new, 1942 Chilton Trouble-Shooting and Tune-Up Handbook, and the price is \$8.00.

I enclose check..... Money order..... Cash.....

Name

Company

Address

City State

Please attach business card or give occupation.

NO CEILING ON SERVICE





YOUR COOLING SYSTEM

Its vital metals must outlast the war. NOR'WAY Cooling System Service is essential . . . To remove old rust and scale . . . To stop leaks . . . To keep new rust from forming. NOR'WAY Cooling System Chemicals give proved year 'round protection to all vital parts.

PEAK Permanent Anti-Freeze has unsurpassed resistance to all corrosive activity. War needs will limit the civilian supply of PEAK, so see your dealer early.



COMMERCIAL SOLVENTS

Corporation
NEW YORK, N. Y.

Here is another ad in the Nor'way Service series appearing in *Collier's*, the magazine that plugs Preventive Service. Materials may be scarce, but there's no ceiling on essential services, such as helping cooling systems outlast the war. Make one profit on materials—another profit on labor. Make two profits with NOR'WAY Cooling System Service.

SHOP HONESTY

(Continued from Page 80)

work for nothing," said Smith, "but the fact that some of them are willing to, certainly proves they are not chiselers."

Although the car used in the survey was five years old, none of the garages attempted to sell an expensive overhaul. (Actually the car was recently overhauled and is in excellent mechanical condition.) Several mechanics actually commented on the splendid condition of the car after making the minor adjustment required.

Smith pointed out that the Better Business Bureau was not challenging the accuracy of any other survey. Its sole purpose was to determine whether or not such conditions existed in Buffalo. Obviously they do not. He also reported that the bureau had waited several months after the results of the first survey were published so that possible effects of the first survey in putting garagemen on their guard would have "worn off."

STAMPS

(Continued from Page 40)

Rhode Island and South Carolina are using one 1942 plate now and reserving the other for 1943. Wyoming's 1943 plates were made before the war limitation on metals. Connecticut has been using permanent aluminum plates since 1937.

THANKS

BECAUSE the general public did not appreciate the contribution of the serviceman and the filling station man in the recent drive for scrap rubber, this may be a good time to bestow a word of praise on these men for the unselfish job they did in the interest of the war effort.

The drive, according to President Roosevelt, brought in 454,155 tons of



"How much longer do you think my tires are going to last?"

scrap rubber. As their part in the drive, servicemen and filling-station men had to deal with the millions of persons who contributed the rubber, weigh the scrap, and pay out their own money for it. Of course, they were reimbursed by the oil companies, under whose guidance the drive was conducted, but their readiness to advance their own cash was undoubtedly a factor in keeping the drive going. Many persons refused payment for the scrap, and many servicemen likewise declined payment for the scrap thus contributed.

Whether the average car owner is to get tires is a question still enshrouded in the fog of political debate, but there is no question about the eagerness of men in the automobile business to do everything possible to keep cars running and thus hasten victory.

BOOTLEGGING

WITHOUT asserting that gasoline bootlegging has increased as the result of permanent rationing in the East, the OPA fuel-rationing division recently released a description of the many close checks kept on the flow of gasoline into the rationed area. Rumors are heard occasionally that gasoline is to be had without coupons from some station that has a mysterious source of supply, but it is doubtful that bootlegging has reached serious proportions, due to the simple fact that few automobile men are selfish enough to put personal gain above the national interest. Criminals may get into the racket but they should be fairly easy to spot.

Rationing in the East, despite its severity, has caused far less grumbling than occurred when temporary rationing was announced. It may be that owners are becoming used to restrictions or that they consider permanent rationing fairer than the stop-gap plan. Or it may be that the threat of meat rationing and fuel-oil shortages during the coming winter may have taken their minds off gasoline, at least temporarily.

Plans for nation-wide rationing are still held in abeyance. The Office of the Petroleum Coordinator announced that plans are complete but no move has been made to put them into effect.

SELF STARTER

An excited woman—obviously a new driver—drove into a New York shop during a recent rain and said that something must be wrong with her windshield wiper.

The serviceman investigated, found nothing wrong, and showed her that the little lever controlling the wiper worked perfectly.

"Oh," said the lady, considerably deflated, "the man who sold me this car said it was an automatic windshield wiper, and I thought that

(Continued on Page 92)

The People, the Dealers, the Factory CO-OPERATING

SHIPS and men and cargoes can be lost at sea—and battles lost at destination—if the trip to the drydock is postponed too often.

Wrecks, with death and destruction and ruin of a day's hundred schedules, can result from neglect in taking railway equipment to the roundhouse shop. And a waiting ship may fail to clear its port.

But in those fields the efficiency methods of business insist on the needed trips, to the drydocks and to the railroad repair shops—for safety and to safeguard against deterioration.

Automotive transportation equipment has somehow seemed to need protection less. Automotive transportation performs a giant task, but without the roll and roar of the sea, the dash and rhythm of the railroads. Automotive transportation performs a giant task but breaks down that task into smaller units; still it is a task that utilizes 32 million cars and trucks.

These days, the requirements of moving goods and people by automotive equipment is continually growing. That transportation must not lapse. It involves intimately the transportation by rail and ship. It involves decisively the people who are carrying on this war, in all its phases.

The people, individually, own these cars and trucks and the people, individually, have a responsibility for maintaining these cars and trucks in operation—and to safeguard them against wear-out.

Plymouth, Dodge, DeSoto and Chrysler dealers have the service facilities for automotive conservation. They have the experienced personnel and specialized equipment. They have the support of continuous contact—mail and personal—with the factory in regard to methods and parts availability.

For factory engineered and inspected essential parts and accessories, call your nearby Plymouth, Dodge, DeSoto or Chrysler dealer. For Dodge Truck parts, call your nearby Dodge dealer.

The Major Bowes broadcasts, representing Plymouth, Dodge, DeSoto and Chrysler dealers, offer helpful messages on automotive equipment conservation.

"Keep 'em Rolling!" is an essential war-time objective. Through co-operation, the factories, the dealers and the public can do it!

THE FACTORIES SERVE
with War Materials
Production



THE DEALERS SERVE
with Transportation
Maintenance

Divisions of CHRYSLER CORPORATION



Big Wash Job?

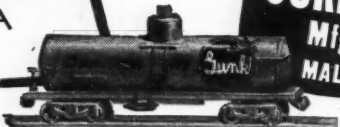
No! Simply Spray with GUNK
...Sluice off with water!

GUNK does what other cleaners cannot do . . . cleans clean Army lustrous paint . . . no give away reflection . . . 100% camouflage—no shine. Nothing cleans Radial-Diesel war tank engines like GUNK . . . not only takes the cling out of oxidized and carbonized oil, grease, and dirt but emulsifies them as well so that they may be rinsed away by sluicing with water hose. GUNK has also been found a superior powder fouling cleaner for cannon bores after firing. Cleans fired brass artillery shells, etc.

Of course GUNK cleans tractors, autos, motor blocks, chassis and de-waxes auto bodies prior to repainting or performs any other automotive grease cleaning application . . . at extremely low cost.

Tank Photo by U.S. Army Signal Corps.

IMMEDIATE DELIVERY



CURRAN CORP.
Mfg. Chemists
MALDEN MASS.

1 GALLON OR A TANK CAR

HELP WIN THE WAR . . . CONSERVE PARTS!



Toledo, too, has gone to war! Parts production for Uncle Sam's jeeps, trucks and tanks, must come *first* these days. That is why we sincerely urge you to help *conserve* the vital civilian parts now in use—to help "stretch out" valves, pistons, pins and bearings—to get the full measure of service that was built into them by Toledo craftsmen. Toledo motor and chassis parts for your trade are still being manufactured. But today **VICTORY MUST BE OUR FIRST CONSIDERATION!**

**The Complete
TOLEDO
Line Includes:**



Valves . . . Pistons . . . Piston Pins . . .
Cylinder Sleeves . . . Sleeve Assemblies
... Engine Bearings . . . Connecting Rods
... Water Pumps and Parts . . . Tie Rod
Ends . . . Chassis Bolts and Bushings . . .
Shackles . . . Independent Front Wheel
Suspension Parts

TOLEDO

THE TOLEDO STEEL PRODUCTS COMPANY
TOLEDO, OHIO, U. S. A.



Warehouses: Atlanta • Boston • Chicago • Cincinnati • Cleveland • Dallas • Denver
Detroit • Indianapolis • Jacksonville • Kansas City • Memphis • Minneapolis • New York
Oklahoma City • Omaha • Philadelphia • Pittsburgh • Richmond • St. Louis • Wichita
Los Angeles • San Francisco • Portland • Seattle

SELF STARTER

(Continued from Page 91)

meant it would start automatically when it began to rain."

The South Bend Lathe Works, 425 E. Madison Street, South Bend, Ind., announces the 41st edition of the manual, "How To Run A Lathe." A number of changes in text material and illustrations have been made, and the new edition contains 128 pages and over 365 illustrations. Copies may be obtained at a cost of 25 cents each. Address your request to Department 97.

WPB-OPA ORDERS

(Continued from Page 37)

Niagara, all in the southwestern corner of the state.

In Amendment No. 10 to the new-car rationing regulations, the OPA permits the purchase of new passenger cars by persons requiring them for experimental work or research related to the war effort. Applications for such purchases must be made directly to OPA headquarters, Washington, D. C.

Sale of 1942 "hard-topped" Ford, Chevrolet and Plymouth sedans to the public has been halted until Oct. 31. The ban applies to all cars of this description that had been driven less than 1000 miles on Aug. 18.

The freeze was made necessary, the WPB explained, because insufficient cars of these models and types remain in the government pool to meet expected military and essential civilian needs.

Authority to build an aggregate of 4000 heavy trucks of a gross vehicle weight of 16,000 lb. or more was granted Aug. 28 to 15 producers, in order to replace vehicles withdrawn from the civilian stockpile since June 1 by the Army, Navy, and Lend-Lease Administration.

Trucks produced under the order must be held for rationing under General Conservation Order M-100. The authorization expires Dec. 31, 1942.

TAPERED ROLLER BEARINGS

Tyson

ROLLER BEARING CORP.
MASSILLON, OHIO

Help Spread Work

Territorial representatives of the Van Norman Machine Tool Co., Springfield, Mass., are helping service establishments handle the demand for work that increases steadily. Van Norman's corps of service engineers are working closely with shop operators to keep their machines running efficiently and economically by means of synthetic maintenance and adjustment. And these men are also often able to help out in situations where new Van Norman machines cannot be obtained because of priority regulations or because of the company's exceptionally heavy obligations in the manufacture of primary war-production tools for the metal-working industries. In such cases, a Van Norman engineer puts a shop, which needs work done, in touch with another shop in the locality which does have the necessary machines and can do a prompt "sub-contracting" job in cylinder reboring, valve refacing, brake-drum turning and grinding, clutch-plate resurfacing, piston grinding, and also the reconditioning of cylinder heads, motor block tops, manifolds and other flat surfaces. Any shop with a problem in salvage work can get a Van Norman man to call and help him, simply by dropping a line to Charles R. Crowder, manager of the Automotive Division, Van Norman Machine Tool Co., Springfield, Mass.

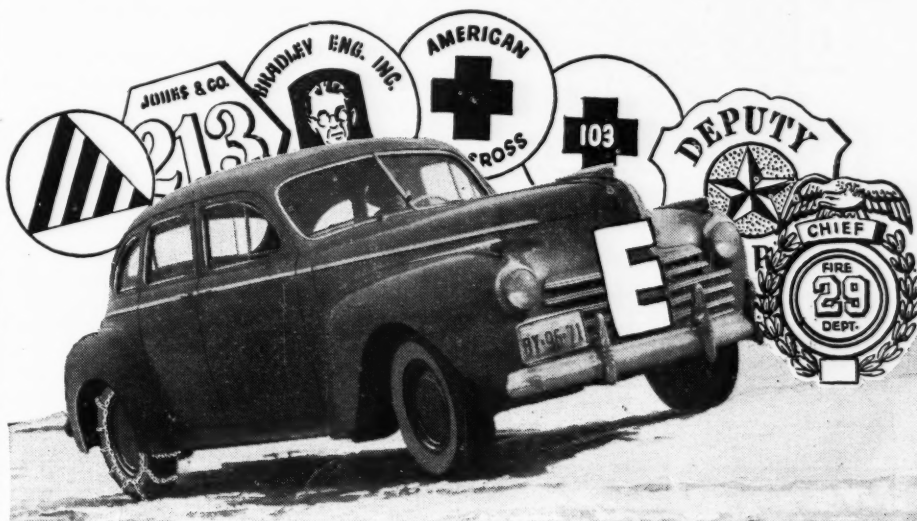
Albany Drivers First

To 350 truck drivers of Albany, N. Y., goes the honor of being the first in the nation to enroll in the U. S. Truck Conservation Corps, pledged to keep America's trucks rolling till Victory, it is reported by Mack Trucks, Inc. The ceremony took place July 22, at the Albany branch of the Mack truck company, where the drivers attended a truck conservation meeting, one of a nation-wide series being conducted by Albert G. Crockett, Mack transportation engineer. The 350 Albany drivers raised their right hands and repeated in unison the oath of the Conservation Corps as administered by John F. Fitzgerald of the New York State War Transportation Committee. Officials of ODT praised the drivers' patriotism and impressed on them that present truck equipment simply cannot be replaced. Only 160,000 trucks will be sold for the duration, it was pointed out, against a normal yearly average of over 600,000.

Oil Additive

The National Graphite Co., Inc., 17 John St., New York, N. Y., has introduced an additive for lubricating oils and many greases. This product, known as Konag "F," is said to produce an extremely tough and durable graphoid skin and steps up the lubricating value of oil by providing a better-wetted surface by breaking down the surface tension of the oil.

TIRE CHAINS ARE VITAL ASSETS NOW



Sell 'em where it will do most good!

Your sales of McKay Tire Chains are not yet limited by any regulatory ruling but the replacement of your stock will undoubtedly be limited. So sell your stock only where it will do most good!

This Year urge the repair and re-use of old chains, the proper maintenance of good present chains . . . and conserve your new stock for essential motorists. When chains for *all* may be unavailable, vital uses must come first. War indus-

try workers, essential delivery trucks, nurses, civilian defense workers, police, firemen, doctors, ambulances, repairmen, farmers, etc., must be kept rolling!

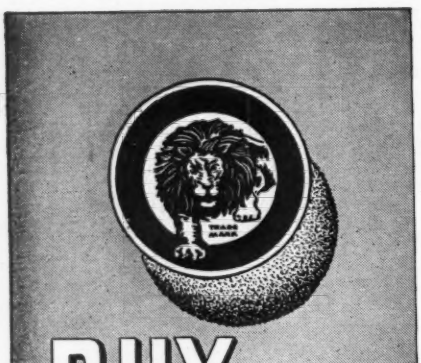
Self regulation will avoid rationing, help you realize the maximum profit, and serve your country as well.

When you *do* sell new chains, McKAY Regulars or McKAY Multi-Grips will give long mileage at low-cost-per-mile.

Distributed Through Jobbers and Manufactured by

THE MCKAY COMPANY
PITTSBURGH PENNSYLVANIA





BUY at the sign of the
LION

● For Dependable Quality Automotive
Parts, Supplies, and Accessories

LION AUTO PARTS & MFG. CO., INC.
1920 S. Michigan Ave., 2214-20 Main St., 1239 Osborne St.
CHICAGO DALLAS MONTREAL



10,000 MILE RING AND LABOR GUARANTEE
See your Ramco Jobber or write Ramsey Accessories Mfg.
Corp., 3693 Forest Park Boulevard, St. Louis, Missouri.

*For running-in new and
rebuilt engines, use auxiliary
lubricants containing-*

dag
THE U.S. MFG. CO. COLLOIDAL GRAPHITE

Acheson Colloids Corporation
PORT HURON MICHIGAN

Rubber Reclaim Process Saves Time, Materials

United States Rubber Co. has developed a method of reclaiming used rubber which improves the quality of the reclaim, saves materials, and reduces the processing time so drastically that it increases the capacity of certain existing equipment by 60 per cent, it is announced by the company.

W. G. Kirby, manager of reclaim development of Naugatuck Chemical Division, which operates the reclaim plant for the rubber company, declared:

"In reclaiming used rubber, it is necessary to remove or dissolve any fabrics which the used rubber may contain. Also the scrap is treated to soften or plasticize the rubber and convert it to a physical state similar to unvulcanized rubber.

"According to former processes, a 'digester' was charged with scrap rubber, caustic soda, pine tar oils and water. The mass was heated by steam under pressure and agitated for sixteen or more hours.

"With the new method, air is introduced into the chamber with the scrap, the steam pressure is increased to raise the temperature, the amount of pine tar oils is reduced, and the mixture is agitated for a much shorter time."

Jobbers Ask Data

Pointing out that jobbers need accurate, dependable and up-to-the-minute priority and preference rating information on specific products that automotive wholesalers must have from their suppliers, the Motor and Equipment Wholesalers Association has requested all automotive aftermarket manufacturers to furnish such information to their accounts.

It has been felt, the MEWA explains, that the association has for the past year furnished priority and preference rating information to its members which gives them the overall picture and aids them in their working knowledge of these war production board regulations, but that the wholesaler still needs specific information to deal with particular products and materials. The manufacturer, the MEWA holds, is the only one in a position to supply this specific information and so enable his customer to furnish him with the proper ratings and certificates needed to obtain merchandise.

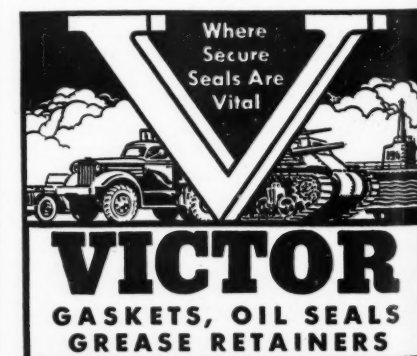


Standard throughout the industry for original equipment and replacement. For Radiator, Heater, Booster Brakes and High Pressure hose connections. Sold by dealers and jobbers everywhere.

WITTEK MANUFACTURING CO.
4305 W. 24th Pl.
Chicago, Illinois



THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO



We're making only war materials now — to hasten the day when we may serve you again with . .

ARVIN

**All-Metal Furniture
Home and Car Radios
Hot Water Car Heaters
Bathroom Electric Heaters**
HOBLITT-SPARKS INDUSTRIES, INC.
Columbus, Indiana

PERFECT SEAL

Sealing Compound

Helps Win The War



SUBMARINES THEY NEED IT
THEY USE IT AMBULANCES

Mr. Garageman } Perfect Seal will
Mr. Fleetowner } do a better job
for you, also.

P. O. B. Mfg. Co., Cincinnati, Ohio

**PRECISION MADE
FOR Perfect PERFORMANCE**

AIRTEX
Precision Made
FUEL PUMPS

Give your customers dependable, guaranteed fuel pump performance. Build up a profitable business around AIRTEX Fuel Pumps and Repair Kits.

Ask your jobber for catalog and get started on this better way of handling fuel pump business. Always... your profits climb with the AIRTEX line.

COMPLETE STOCK OF NEW AIRTEX FUEL PUMPS
STILL AVAILABLE FOR ALL CAR AND TRUCK MODELS

AIRTEX AUTOMOTIVE CORPORATION **FAIRFIELD, ILL.**

**AIRTEX
3-WAY
SERVICE**

1. A Diaphragm Kit for minor repairs.
2. A Repair Kit for emergency repairs.
3. A Complete Fuel Pump Exchange Service—a factory rebuilt Fuel Pump—with the AIRTEX 30,000 Mile Guaranteed Diaphragm—at a low exchange price.

Says "AIRY" TEX
The Fuel Pump Kid

"Keep 'em rolling for Uncle Sam with AIRTEX Fuel Pumps and Repair Kits. AIRTEX Fuel Pump Diaphragms are unconditionally guaranteed for 30,000 miles of satisfactory service."



JOIN NOW

WIRY JOE WANTS YOU!

Join up with Wiry Joe for Victory

Check the wire on every job that comes into the shop... make necessary repairs and replacements. Help end the 12 to 20% gasoline waste often caused by faulty ignition and defective wiring.

But make replacements wisely. Automotive wiring (with its copper core, and rubber-and-lacquer insulation) is made from vital, war-needed materials.


If a wire can be cleaned, shortened, or repaired, rather than replaced—do it. Forget about "sets" unless absolutely essential—replace only the wires that have gone bad. Keep insulation clean, wipe it off occasionally... this prevents unnecessary deterioration and lengthens wire life.

✓ *Check the wire
on every job*

Wiry Joe
WIRE AND CABLE
PAWTUCKET • RHODE ISLAND

★
WORN BEARINGS
CAUSE
TIRE WEAR
REPLACE THEM
WITH

**LINK-BELT
ROLLER
BEARINGS**



Check the front wheel bearings and make certain of perfect wheel alignment. Replace with Link-Belt—the bearing with the exclusive roller and raceway design which assures free rolling action—greater load capacity and perfect alignment. Also, for Differentials and Rear Axles.

Made by the makers of the famous Silverstreak Silent Timing Chain

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LINK-BELT COMPANY
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LUBRICATING
EQUIPMENT**

*plays an important part in
WAR PROGRAM*

by providing fast, thorough, and economical lubrication of cars, trucks, buses and other motor vehicles so important in the transportation of war materials and men engaged in war production. Ask your nearest jobber, or write us for details on this equipment.

LINCOLN ENGINEERING COMPANY
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**Buffalo
MUFFLERS**

*Stop that
Noise!*

BUFFALO PRESSED STEEL CO., INC., YOUNGSTOWN, OHIO

Tire Preservative

Research chemists of The Firestone Tire & Rubber Co. have developed a new inexpensive liquid tire-coating material. Application of the new material, it is said, will enable American motorists to extend the life of tires now on their cars by counteracting the effects of aging and other results of climatic conditions that hasten rubber deterioration. This new chemical solution, known as Extra Mileage Tire Preservative, is now being used by Firestone dealers and stores as a protective dressing for tires. It may also be applied with an ordinary paint brush by the car owner.

While the primary purpose of the new product is to protect the exposed surface of the tire against sun and climatic conditions, the manufacturer claims that it also restores, to a marked extent, the essential properties of flexibility and vitality which are characteristic of new rubber.

"Save Truck" Ads

Beginning with August and September insertions, The Toledo Steel Products Company advertising features the ODT drive for voluntary membership in the "U. S. Truck Conservation Corps," according to general manager, Joe Adams.

Adams stated that "conservation of parts and equipment is vital to Victory. Every truck driver, fleet owner, repair man, dealer, service station operator, and manufacturer must carry out the pledge ODT has set up for membership in the U. S. Truck Conservation Corps—to keep 'em rolling longer—to prolong the life of every truck now on the road."

Nash Branch Moves

Nash Motors of New York, factory branch, has moved its headquarters to Nash-Kelvinator's administrative building at 16 West 61st St., it is announced by R. H. Israel, branch manager. The branch, Israel said, was formerly headquartered at Broadway and 133rd St., and the new move will bring it back into the heart of New York's automobile row. Parts distribution will continue for the time being to be handled out of the company's 133rd St. building, he said.

Make Big Profits on Small Investment in
**SHURHIT
IGNITION
PARTS**



Ask your Shurhit jobber or write us for details on General Ignition Assortments of fast-moving parts . . .
Contact Points . . .
Condensers . . .
Rotors . . . Caps . . .
Coils . . .
Switches, etc.

SHURHIT PRODUCTS, INC.
Waukegan, Ill.

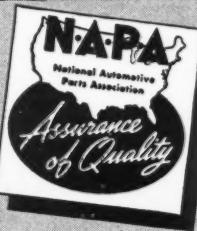
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GLAD WE'VE GOT
SOUTHERN
REG. U.S. PAT. OFF.
BRAKE LINING



CAUTION
TARGET
RANGE

SOUTHERN
FRICTION MATERIALS CO.-CHARLOTTE, N.C.

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NAPA Jobber
For Prompt
Service on
Automotive
Parts!



A Nation-Wide Organization of
Independent Warehousing Distributors

NATIONAL AUTOMOTIVE PARTS ASSOCIATION
Executive Offices: 705 Fox Building, Detroit

Pledged
**U.S. TRUCK
CONSERVATION CORPS**



**HEART
OF TIRE CONSERVATION
IS WHEEL ALIGNMENT
AND BALANCING**

Unless wheels are aligned and balanced all other tire saving precautions are completely nullified. That is why Bear wheel aligners and balancers are so indispensable. In keeping 'em rolling... military transport, trucks, buses and 20,000,000 essential passenger cars . . . Bear is doing its part. Bear Mfg. Co., Rock Island, Ill.

BEAR

GREATEST NAME IN SAFETY TEST AND CORRECTION EQUIPMENT

ONLY WALKER SILENCERS HAVE
"I.T."

SEE YOUR WALKER JOBBER
ABOUT "INDIVIDUAL TUNING"

SHORT CUTS to SAVINGS through OAKITE cleaning

FOR EXAMPLE:

reconditioning carburetors

Since new carburetors, fuel pumps and distributors are no longer available, it will pay you to urge your customers to have their present units cleaned and re-conditioned.

But be sure you save time, effort and money in handling this work as so many other garages and repair shops are now doing! Use the NEW, successful Oakite method specially designed for this job. You, too, will find it thoroughly, quickly removes fuel residues and other foreign matter . . . leaves parts in clean, bright condition, with fine color and finish . . . enables you to make subsequent repairs easier, complete them faster!

Write today for Special Service Report giving details. Also ask for FREE 36-page manual packed with many other money-saving Oakite cleaning short cuts.

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Representatives in All Principal Cities of the United States and Canada

OAKITE
MATERIALS...METHODS...SERVICE



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FOR EVERY CLEANING REQUIREMENT



Winning the War is all that matters!

Today, when America's vast war effort demands that every muscle be strained in the interests of Victory, Railway Express is trying to do its part.

RAILWAY EXPRESS
AGENCY INC.

NATION-WIDE RAIL-AIR SERVICE

35 YEARS OF EXPERIENCE

IN QUALITY PRODUCTION ARE
RESPONSIBLE FOR THE DEMAND
AMONG EXPERT MECHANICS
EVERYWHERE FOR TOOLS THAT
BEAR THE FAMOUS NAME OF

PLUMB



To meet war needs
31
FACTORIES
make them

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HOW TO MAKE NEW CUSTOMERS
HOW TO MAKE SATISFIED CUSTOMERS
HOW TO MAKE MONEY EASILY
HOW TO MEET COMPETITION
HOW TO MAKE A GOOD PROFIT
HOW TO KEEP 'EM ROLLING

It works in minutes—not hours!

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Guaranteed Motor Seal*

WONDER WELD

MILLER MFG. COMPANY

1100 N. 32ND STREET • CAMDEN, N. J.
Warehouses in Principal Cities

BLUE CROWN
SPARK PLUGS

AIR COOLED

LARGER ELECTRODES GIVE LONGER LIFE

FINNED SHELL SAVES GAS

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MOTOR MASTER PRODUCTS CORPORATION
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Export Distribution
BORG-WARNER INTERNATIONAL CORP., Chicago

VITAL TO—

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- Maintained Schedules

SKF
BALL AND ROLLER BEARINGS

Smash-Proof
CREEPERS

Contain a minimum of scarce materials needed in the war effort.

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ASHTABULA, OHIO

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FOR 22 YEARS

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Electric Motor Grinders
Battery Chargers
Fast Battery Chargers
Battery Testers

Write for Bulletins

BALDOR ELECTRIC COMPANY
4340 Duncan Ave. ST. LOUIS, MO.

South Bend Turret Lathe

A new bench-model Turret Lathe for rapid production to close tolerances on chucking operations or bar work has just been announced by the South Bend Lathe Works. This lathe has a 10 in. swing over the bed and saddle wings, 1 3/8 in. hole through the head-stock spindle, and 1 in. collet capacity. It is well-adapted to second-operation work.

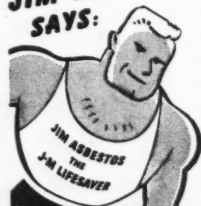
The handlever-operated bed turret indexes automatically and has an adjustable stop for each of the six turret faces. The lathe is equipped with both a compound rest cross slide and a handlever cross slide, which are interchangeable. The latter is furnished with front and rear tool blocks which provide three tool positions. A quick-change gear box supplies 48 longitudinal power feeds for the universal carriage, 48 power cross feeds for the compound rest cross slide, and 48 thread cutting feeds, 4 to 224 per inch. The underneath motor drive and back gears deliver twelve spindle speeds, from 97 to 700 r.p.m.

A large assortment of attachments and accessories simplify tooling for specialized work or second operation jobs. For information, write to South Bend Lathe Works, Department 9Z, South Bend, Ind.

Woods New Treasurer

Howard W. Jordan, president, Pennsylvania Rubber Co., has announced the election of D. C. Woods as treasurer. Woods replaces C. G. Merrill, who is retiring after 42 years of service with the company.

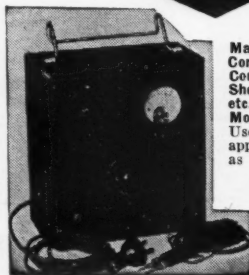
JIM ASBESTOS SAYS:



For trouble-free braking in these critical times, turn your problems over to the J-M Brake Advisory Service. Write Johns-Manville, 22 E. 40th St., N. Y.

The Lifesaver of the Nation's Highways
JOHNS-MANVILLE BRAKE LINING

WORLD'S FASTEST TROUBLE SHOOTER



MAKES MONEY SAVES TIME

Make positive tests on Condensers, Coils, Lights, Continuity, Generators, Shorts, Grounds, Leaks, etc. With this simple Model 100 Analyzer. Used by Army, Navy—approved by 50,000 users. as the fastest, most economical trouble shooter made—save enough time and money in 30 days to pay for itself. Ask your local jobber—or write for FREE information.

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AIR COMPRESSORS

(Write for Catalog "A")

LYNCH MANUFACTURING CORPORATION
Defiance, Ohio, U. S. A.
(Formerly Modern Equipment Corporation)

BUELL
AIR HORNS



SAVE TIRES!

It's a fact! Tire mileage does increase . . . gas consumption does go down when you keep rolling with less use of brakes with **BUELL HIGH PRESSURE AIR HORNS.**

Write for descriptive chart, NOW.

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The complete line that completely satisfies

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